BEFORE THE OIL CONSERVATION DIVISION
EXAMINER HEARING OCTOBER 5, 2023

CASE NO. 23810

CABALLO CLGC EXTENSION PILOT PROJECT
UNDER R-21061

LEA COUNTY, NEW MEXICO

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

APPLICATION OF EOG RESOURCES, INC. FOR A TWO-YEAR EXTENSION OF ITS CLOSED LOOP GAS CAPTURE PILOT PROJECT AUTHORIZED UNDER ORDER NO R-21061, LEA COUNTY, NEW MEXICO.

CASE NO. 23810

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STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
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APPLICATION

EOG Resources, Inc. ("EOG") (OGRID No. 7377) through its undersigned attorneys, hereby files this application with the Oil Conservation Division for a two-year extension of its closed loop gas capture pilot project authorized under Order No. R-21061 until December 31, 2025 ("Pilot Project"), with the option to request additional two-year extensions. In support of this application, EOG states:

1. EOG is the operator of the **Caballo 23 Fed No. 2H Well** (API No. 30-025-40051), a horizontal well located in the E/2 W/2 (Unit C) of Section 23, Township 25 South, Range 33 East, NMPM, in Lea County, New Mexico.

2. This well produces from the Bone Spring formation (Red Hills; Upper Bone Spring Shale Pool [Pool Code 97900]) and is dedicated to a standard horizontal well spacing unit comprised of the E/2 W/2 of said Section 23.

3. EOG is authorized under Order R-21061 to use the Caballo 23 Fed No. 2H Well to engage in a closed loop gas capture pilot project to occasionally inject produced gas into the Leonard Shale interval of the Bone Spring formation at a total vertical depth of approximately 9,418 feet to 9,457 feet along the horizontal portion of the wellbore at surface injection pressures

of no more than 3,500 psi. The source of the produced gas will be the Bone Spring, Wolfcamp and Atoka formations.

4. Approval will allow EOG to continue intermittent injection of produced gas into the subject well for the purpose of temporary storage and later recovery to avoid the shut-in of producing wells or the temporary flaring of gas during pipeline capacity constraints, mechanical difficulties, plant shutdowns, or other events impacting the ability to deliver gas into a pipeline. Approval also will reduce impacts associated with temporary interruptions of gas pipeline services and midstream operations and help develop standard practices for similar projects.

5. The Division administratively extended Order R-21061 through December 31, 2023. *See* Administrative Approval, attached as **Exhibit A**. However, the Division required that further extensions be approved only after notice and hearing.

6. The Caballo 23 Fed No. 2H well underwent and passed a mechanical integrity test on September 1, 2023. EOG will be setting a packer at approximately 9,050 feet.

7. Approval of this pilot project is in the best interests of conservation, the prevention of waste, and the protection of correlative rights.

WHEREFORE, EOG Resources, Inc. requests that this Application be set for hearing before an Examiner of the Oil Conservation Division on October 5, 2023, and that after notice and hearing this Application be approved.

Respectfully submitted,

HOLLAND & HART LLP

By: _____

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ATTORNEYS FOR EOG RESOURCES, INC.

CASE _____: **Application of EOG Resources, Inc. for a Two-Year Extension of its Closed Loop Gas Capture Pilot Project Authorized Under Order No. R-21061, Lea County, New Mexico.** Applicant in the above-styled cause seeks an order authorizing a two-year extension of its closed loop gas capture pilot project approved under Order No. R-21061 until December 31, 2025 ("Pilot Project"), with the option to request additional two-year extensions. EOG is authorized under Order R-21061 to use the **Caballo 23 Fed No. 2H Well** (API No. 30-025-40051) to engage in a closed loop gas capture pilot project to occasionally inject produced gas into the Leonard Shale interval of the Bone Spring formation at a total vertical depth of approximately 9,418 feet to 9,457 feet along the horizontal portion of the wellbore at surface injection pressures of no more than 3,500 psi. The source of the produced gas is the Bone Spring, Wolfcamp, and Atoka formations. The well is a horizontal well located in the E/2 W/2 (Unit C) of Section 23, Township 25 South, Range 33 East, NMPM, in Lea County, New Mexico. It is currently producing from the Bone Spring formation (Red Hills; Upper Bone Spring Shale Pool [Pool Code 97900]) and dedicated to a standard horizontal well spacing unit comprised of the E/2 W/2 of Section 23. The subject acreage is located approximately 20 miles west of Jal, New Mexico.

EXHIBIT A

State of New Mexico
Energy, Minerals and Natural Resources Department

EOG Resources
c/o Sarah Mitchell
E-mail: sarah_mitchell@eogresources.com

RE: **Order R-21061; Extension of Pilot Project**
GAS CAPTURE PILOT PROJECT INVOLVING THE OCCASIONAL INJECTION OF PRODUCED GAS INTO THE BONE SPRING FORMATION, LEA COUNTY, NEW MEXICO

Ms. Mitchell,

The Oil Conservation Division (OCD) has reviewed your request, received on January 28, 2021, to extend the authority granted by Order R-21061 for the Pilot Project that involves the intermittent injection of gas into well(s) including the Caballo 23 Federal No. 2H well (30-025-40051) ("the CLGC Well"). The request, which was received prior to the deadline, states that EOG Resources, Inc. (EOG) has concluded that the Pilot Project is a safe and effective way to significantly reduce flaring due to third party down time.

EOG observed an elevated pressure within the intermediate casing of the CLGC Well on August 24, 2022. The maximum pressure reached was 657 psi and injection into the CLGC Well was ceased.

Per the first supplemental information for this request, received on September 15, 2022, EOG requests to extend the authority granted by Order R-21061 for the purpose of temporary storage and recovery to prevent waste, reduce impacts associated with temporary interruptions of gas pipeline services and midstream operations, and to develop standard practices for similar projects.

EOG met with OCD on October 17, 2022, to discuss the circumstances that led to the elevated pressure within the intermediate casing of the CLGC Well. The pressure history for the CLGC Well indicates that there is a slow and steady increase in pressure of approximately 50 psi every 5 weeks that is unrelated to the injection activity. EOG believes that the source of the influx causing the slow and steady pressure increase is a formation shallower than the injection interval.

Per the second supplemental information for this request, received on October 28, 2022, EOG

requests to extend the authority granted by Order R-21061 through December 31, 2023, with the option of an additional extension, during which time EOG will pursue additional options for injection to increase flexibility and functionality of its closed loop gas capture activity. EOG proposed a pressure management procedure to manage the pressure within the intermediate casing of the CLGC Well.

With the additional requirements of this extension that are stated below, it is the OCD's understanding that Conclusions of Law Paragraphs 9 to 15 of Order R-21061 are accurate.

The OCD finds that for the reasons above, the granting of this request to extend Order R-21061 is in the interest of conservation, will prevent waste, and will protect the environment. Therefore, a two-year and eleven-month extension to Order R-21061 extending its termination date to December 31, 2023, is granted with the following conditions:

1. If the intermediate casing pressure exceeds five hundred pounds per square inch (500 psi) or the surface casing pressure exceeds one hundred pounds per square inch (100 psi); EOG shall notify the OCD Engineering Bureau at ocd.engineer@emnrd.nm.gov within twenty-four hours.
2. If the intermediate casing pressure exceeds one thousand pounds per square inch (1,000 psi); EOG shall immediately cease injection into the CLGC Well and within twenty-four hours notify the OCD Engineering Bureau at ocd.engineer@emnrd.nm.gov. EOG shall not recommence injection until approval to do so is granted by the OCD.
3. EOG shall monitor the intermediate casing pressure, but not bleed it down while injecting unless doing so is necessary for safety or the integrity of the CLGC Well.
4. When the intermediate casing pressure reaches 50 psi and the pressure increase is unrelated to injection, then EOG shall bleed the pressure down to 0 psi. EOG shall maintain a record of each time the intermediate casing is bled off that includes the date of each event and pressure just prior to bleeding it off. EOG shall review its record whenever the frequency of bleed off events warrants it and no less than once every three months to determine the rate at which pressure is increasing within the intermediate casing. If that increase is determined to be greater than 50 psi per month, then EOG shall cease injection into the well and notify the OCD Engineering Bureau at ocd.engineer@emnrd.nm.gov within twenty-four hours. EOG shall not recommence injection until approval to do so is granted by the OCD.
5. No further extensions of R-21061 shall be granted administratively.

All requirements of R-21061 remain in full force and effect.

DATE: 12/23/22

ADRIENNE SANDOVAL
Director

cc: Case File 20965
Well file 30-025-40051
Bureau of Land Management

STATE OF NEW MEXICO
DEPARTMENT OF ENERGY, MINERALS AND NATURAL RESOURCES
OIL CONSERVATION DIVISION

APPLICATION OF EOG RESOURCES, INC. FOR A TWO-YEAR EXTENSION OF ITS CLOSED LOOP GAS CAPTURE PILOT PROJECT AUTHORIZED UNDER ORDER NO R-21061, LEA COUNTY, NEW MEXICO.

CASE NO. 23810

SELF-AFFIRMED STATEMENT OF RYAN YARGER, P.E., FACILITIES ENGINEER

1. My name is Ryan Yarger, P.E., and I am employed by EOG Resources, Inc. ("EOG") as a Facilities Engineer.

2. My responsibilities include the Permian Basin of New Mexico. I have not previously testified before the New Mexico Oil Conservation Division as an expert witness in petroleum engineering. My resume, attached as **EOG Exhibit A-1**, outlines my education and work experience which I believe qualify me to testify as an expert in petroleum engineering.

3. I am familiar with the application filed by EOG in this matter and with the underlying facts and issues and have conducted an engineering review of the subject well.

Background

4. Attached as **EOG Exhibit A-2** is Order No. R-21061, dated January 31, 2020. It authorizes EOG to conduct a closed loop gas capture ("CLGC") pilot project ("Pilot Project") using EOG's **Caballo 23 Federal Well No. 2H** (API No. 30-025-40051) (the "Well"). The Well is a horizontal well completed in the Bone Spring formation within a spacing unit comprised of the W/2 of Section 23, Township 25 South, Range 33 East, NMPM, in Lea County, New Mexico, and dedicated to the Red Hills; Upper Bone Spring Shale Pool [Pool Code 97900].

BEFORE THE OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Exhibit No. A
Submitted by: EOG Resources, Inc.
Hearing Date: October 5, 2023
Case No. 23810

5. Under Order R-21061, EOG is authorized to use the Well to occasionally inject produced gas into the Avalon Shale interval of the Bone Spring formation at a total vertical depth of approximately 9,418 feet to 9,457 feet along the horizontal portion of the wellbore at surface injection pressures of no more than 3,500 psi. The sources of the produced gas are the Bone Spring, Wolfcamp, and Atoka formations. The Division authorized the Pilot Project after the presentation of evidence from an initial feasibility study performed in collaboration with the Division.

6. After the installation of permanent infrastructure and additional wellhead equipment, the Well was placed into regular CLGC service on October 7, 2021. The Well forms the cornerstone of EOG's CLGC program as it is centrally located within EOG's core area of Lea County operations and accepts injected gas at higher rates than any of EOG's other CLGC wells. The Well can sustain injection rates at or above 10 million standard cubic feet of gas per day ("MMSCFD") with a surface pressure of 1,100 psi. In comparison, EOG's other CLGC Pilot Project wells can only sustain rates of approximately 5 MMSCFD with equivalent surface pressures.

7. The Division administratively extended Order R-21061 through December 31, 2023. *See* Administrative Extension, attached as **EOG Exhibit A-3**. However, the Division required that further extensions be approved only after notice and hearing and imposed certain conditions on the extension approval. *See id.*

8. Accordingly, EOG filed this application for hearing requesting an order for a two-year extension of its Pilot Project authorized under Order No. R-21061 until December 31, 2025 ("Pilot Project") with the option to request additional two-year extensions.

9. The Well has exhibited some mild casing pressure anomalies that have been thoroughly evaluated. Based on EOG's observations and data, described in detail below, these

anomalies are now understood and do not present a risk to continued operation of the Well for CLGC injection. For all the reasons outlined in my testimony, and in the corresponding testimony of, Brice Letcher, EOG's Production Engineer and, Patrick Geesaman, EOG's Petroleum Geologist, the Pilot Project should be extended and this application should be approved.

Intermediate Casing Pressure Fluctuations

10. During the afternoon of August 24, 2022, EOG observed above average (>450 psi) intermediate casing pressures during normal CLGC operations on the Well. Injection was occurring through the production casing/tubing annulus, as approved, with a peak surface injection pressure of 916 psi. During this injection event, the intermediate casing pressure rose steadily to a peak of 657 psi. EOG discontinued injection and EOG engineers were notified.

11. On the morning of August 25, 2022, EOG bled the pressure in the intermediate casing down. The intermediate casing pressure quickly returned to 0 psi after flowing approximately 0.5 barrels of water with no gas. EOG pumped approximately 0.5 barrels of water back into the intermediate casing and increased the pressure in the intermediate casing to 1,000 psi, holding for 30 minutes. EOG then increased the pressure to 1,500 psi, holding for 15 minutes, before bleeding the pressure down.

12. During this test sequence, pressure within the intermediate casing held steady and EOG did not observe any other behavior indicating communication between the intermediate casing, production casing, surface casing, or with the formation. As gas injection resumed that day, the intermediate casing pressure peaked at 335 psi at 20:15 central time on August 25, 2022, and declined after that during normal injection

operations. The following morning on August 26, 2022, the intermediate casing pressure was at 266 psi. EOG proceeded to bleed the pressure off.

13. EOG notified the Division on August 26, 2022, that it had experienced above-normal intermediate casing pressures, as per the conditions of Order R-21061. At the request of the Division, EOG bled the intermediate casing pressure down that afternoon. By that time, the intermediate casing pressure had naturally attenuated to 18 psi. Following the Division request, EOG bled the intermediate casing pressure down, taking about one minute to flow approximately a half-gallon of water. The casing was left open for 15 minutes with no additional flow observed. The pressure remained near 0 psi regardless of whether EOG was injecting on or producing the Well.

14. **EOG Exhibit A-4** is a copy of the C-103 notice that EOG filed with Division describing EOG's observations and actions regarding the observed intermediate casing pressure fluctuations, notification EOG provided to the Division, and the Division's instructions.

15. As explained in EOG Exhibit A-4, EOG examined pressure trends and the difference in the temperature of the gas lift gas compared to the CLGC gas and determined that the pressure fluctuations observed in the intermediate casing were attributable to thermal expansion.

16. As noted in EOG Exhibit A-4, the pressure fluctuations are similar to behavior previously observed on May 18, 2020, and described in a Form C-103 that was filed with the Division on May 28, 2020, attached as **EOG Exhibit A-5**.

17. Based on EOG's observations and data, EOG believes that the observed intermediate casing pressure fluctuations are not due to pressure communication from CLGC

injection. The data instead strongly supports EOG's conclusion that the fluctuations are due to thermal expansion.

Intermediate Casing Micro-Annulus

18. During EOG's investigation of the intermediate casing pressure fluctuations described above, EOG determined that the Well also exhibits a slow intermediate casing pressure increase of approximately 50 psi per month.

19. EOG believes this slow buildup of baseline pressure in the intermediate casing allowed the thermal effects of CLGC injection to elevate the intermediate casing pressure to notification levels, as described above.

20. Because there were no hydrocarbons produced at the surface through the intermediate casing and the well has passed mechanical integrity tests, EOG has concluded in discussions with the Division that the observed buildup of bradenhead pressure appears to be originating from a shallow formation at or below the intermediate casing shoe, at approximately 5,005 feet measured depth ("MD"), through a micro-annulus or cement channeling behind the production casing string.

21. As noted above, however, all the data, observations, and evidence strongly indicate there is no communication between the production casing and the intermediate casing, nor is there communication between the intermediate casing and the Bone Spring formation.

22. While the Division approved extension of EOG's Pilot Project authorization under Order No. R-21061 until December 31, 2023, it included conditions of approval, including a requirement to monitor casing pressures and cease injections if certain pressure levels are reached. *See* **EOG Exhibit A-3**

23. Since the Division extended the Pilot Project's authorization, EOG has had no issues managing or controlling the intermediate casing pressure in the well and received no hydrocarbons through the intermediate casing at the surface. In addition, the rate of change in the intermediate casing pressure has not increased. All observed short-term intermediate casing pressure fluctuations can be positively tied back to the Well's CLGC injection events and the related thermal expansion.

Well Workover & Mechanical Testing

24. To address the Division's concerns and to verify the status of the Well, EOG undertook additional work to further confirm the Well's mechanical integrity. EOG's Production Engineer, Brice Letcher, P.E., provides an overview and description of the workover and mechanical integrity test that were performed through a separate self-affirmed statement included in EOG's hearing packet and marked as EOG Exhibit B.

25. In sum, the Well underwent and passed a mechanical integrity test on September 5, 2023. EOG also set a tubing packer at approximately 9,041 feet on September 5, 2023.

Additional CLGC Candidate Evaluation

26. EOG continues to evaluate its well stock for CLGC injection well candidates and is making substantial progress on its other CLGC Pilot Project. Two of the four remaining wells authorized for intermittent injection in a separate CLGC Pilot Project under Order No. R-21747 have been connected to EOG's CLGC system. EOG anticipates connecting the remaining two approved wells under that Pilot Project in the near term. However, these wells will not replace the injection capacity of the **Caballo 23 Federal Well No. 2H** and the other approved CLGC wells are connected to different high-pressure systems. EOG has not identified additional satisfactory CLGC candidates suitable for intermittent injection at this time. For all the reasons outlined above,

replacing the **Caballo 23 Federal Well No. 2H** is not necessary. It remains a safe and effective CLGC injection well.

Conclusion

27. Given the Well's history, its successful mechanical integrity test, and additional operational and notification safeguards that are in place, it is my opinion that an extension of the CLGC Pilot Project authority and continued use of the Well as a CLGC injector is justified and appropriate.

28. The Well remains the cornerstone of EOG's CLGC program and would represent a substantial loss in injection capacity centered in a core area of EOG's operations. However, regardless of the status of Order R-21061, EOG will continue to evaluate additional CLGC opportunities and will leverage the wells separately authorized for a CLGC Pilot Project in Order R-21747.

29. In my opinion, approval of this application is in the best interest of conservation, the prevention of waste, and protection of correlative rights.

30. Exhibits A-1 through A-5 were either prepared by me or compiled under my direction and supervision.

31. I affirm under penalty of perjury under the laws of the State of New Mexico that the foregoing statements are true and correct. I understand that this self-affirmed statement will be used as written testimony in this case. This statement is made on the date next to my signature below.

Ryan Yarger, P.E.

10/03/2023
Date

Ryan Yarger, P.E.

2207 Stratford Ct. ❖ Midland, TX 79705 ❖ Phone: (215)-378-3002 ❖ E-Mail: RyanYarger@gmail.com

WORK EXPERIENCE

EOG Resources – *Midland, TX*
Sr. Facilities Engineer March 2021 – Present

- Managing facility and pipeline construction for a large section of EOG's Lea County, NM acreage.
- Forecasting gathering needs and planning infrastructure to support development and reduce long-term LOE.
- Coordinating field gas supply for electric and dual fuel frac fleets, including compression and third parties.
- Engineer for Closed Loop Gas Capture and lean fuel, both hallmark emissions projects.
- Overseeing department ESG initiatives, focusing on emissions forecasting and project coordination.
- Providing engineering support for regulatory initiatives, including surface commingling, permitting, and field tours.

Facilities Engineer II July 2018 – March 2021

- Oversaw Loving County, TX infrastructure for 20% of the division's wells.
- Reviewed key areas of centralized tank battery design, including instrument air, automation equipment, and hydraulics.
- Constructed mobile infrastructure and processing/metering trailers to support electric frac fleets.
- Served as equipment specialist for RTP pipe, air compressors, gas measurement, control valves, and PVF.
- Performed root-cause analyses for department safety incidents and assisted with go-forward initiatives.

FTS International – *Shreveport, LA* March 2017 – June 2018
Field Engineer I

- Provided real-time technical assistance and expertise on location during stimulation treatments, including new hire training.
- Monitored live treatment data to document stages and confirm that quoted specifications were met.
- Collaborated with Service Supervisors/treaters to properly execute stimulations.
- Composed post job reports and field tickets for customers, including treatment summaries and analyses of events.
- Managed proppant and chemical inventories for assigned jobs and ensured correct QA/QC.

Hathaway LLC – *Bakersfield, CA* September 2016 – March 2017
Production Engineer

- Monitored well/field performance and evaluated for optimization opportunities and upside potential.
- Performed root-cause analyses on down/problem wells and developed solutions to present to management.
- Served as lead lease operator for Hathaway LLC's largest lease, managing 30,000 BBL/day of gross fluid.
- Assisted with project management and design for a facility expansion aimed at handling doubled throughput.
- Facilitated automation projects, including SCADA integration and overseeing Hathaway LLC's tank alarm system.

Vaquero Energy – *Santa Maria, CA* May 2016 – August 2016
Intern

- Assisted with workover planning, LWD interpretation, well log calculations, facility optimization, and drilling operations.
- Developed options for remediating and/or replacing an injection well approaching its maximum allowable surface pressure.
- Investigated remedial inner liner performance in cyclic steam wells as compared to those with original completions.
- Identified improperly abandoned wells and built wellbore diagrams for a potential lease acquisition.
- Performed historical review and performance analysis on Monterey formation produced water injection wells.

ConocoPhillips – *Anchorage, AK* May 2015 – August 2015
Exploration & Production Intern

- Performed a comprehensive study on rock production and casing collapse in the Kuparuk River Unit.
- Made proposal, forecasted production, and ran economics for a rock production remediation program.

Beacon Energy Services – *Signal Hill, CA* June 2014 – August 2014
Intern

- Assisted with project management, cost estimating, and contract bidding for midstream petroleum work.
- Took part in various field operations, with jobsites ranging from urban refineries to remote terminals.

EDUCATION

University of Wyoming – *Laramie, WY* August 2012 – May 2016
Bachelor of Science in Petroleum Engineering

- Minor in Geology
- Graduated Magna Cum Laude
- Cumulative GPA: 3.96/4.00
- Received Honor Book Award as Top Graduating Senior in Petroleum Engineering

CREDENTIALS

- **Licensed Professional Engineer**
  - TX: 138866
  - NM: 26815

INDUSTRY INVOLVMENT

- **Society of Petroleum Engineers – Permian Basin Section**
  - Past Board Member, Chairing PR & Advertising
  - Past Completions & Operations Study Group Committee Member
- **Interstate Oil & Gas Compact Commission**
  - Standing Committee Member

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

APPLICATION OF EOG RESOURCES, INC. FOR A GAS CAPTURE PILOT PROJECT INVOLVING THE OCCASIONAL INJECTION OF PRODUCED GAS INTO THE BONE SPRING FORMATION, LEA COUNTY, NEW MEXICO

CASE NO. 20965
ORDER NO. R-21061

ORDER OF THE DIVISION

This case came on for hearing at 8:15 a.m. on December 12, 2019, in Santa Fe, New Mexico, before Examiner Dylan Rose-Coss..

NOW, on this 31st day of January, 2020, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner,

FINDS THAT

(1) Due notice has been given, and the OCD has jurisdiction of this case and the subject matter.

(2) EOG Resources, Inc. ("EOG") seeks approval of a gas capture pilot project ("Project") involving the intermittent injection of produced gas into the Bone Spring formation (Red Hills; Upper Bone Spring Shale Pool, Pool Code 97900) within the following 160 acres, more or less, located in Lea County, New Mexico:

Township 25 South, Range 33 East, NMPM
Section 23: E/2 W/2

(3) The Project involves the injection of excess gas volume from EOG's gathering system into an existing producing gas well for temporary storage. The excess gas volume is the result of the interruption of pipeline service by a third-party gas processing facility that is contracted to take the produced gas from EOG's gathering system.

(4) The Project will inject the excess gas volume into EOG's Caballo 23 Federal Well No. 2H (API No. 30-025-40051) ("Well"), a horizontal well with a surface location of 50 feet from the North line and 2200 feet from the West line and a bottom-hole location of 4911 feet from the North line and 2221 feet from the West line of Section 23, Township 25 South, Range 33 East, NMPM, Lea County, New Mexico. The

BEFORE THE OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Exhibit No. A-2
Submitted by: EOG Resources, Inc.
Hearing Date: October 5, 2023
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Well is currently producing from the Bone Spring formation within a standard horizontal well spacing unit comprised of the W/2 of Section 23.

(5) EOG will intermittently inject the produced gas through the Well into the upper Bone Springs formation, which is sometimes referred to as the Avalon Shale, or the Leonard Shale, at a total vertical depth ("TVD") of approximately 9,418 to 9,457 feet along the perforated portion of the wellbore at a surface injection pressure not to exceed 3,500 pounds per square inch ("psi").

(6) EOG appeared through counsel and presented testimony and exhibits that support the following findings of fact:

(a) The goal of the Project is to divert produced gas resulting from the interruption of the gathering system and temporarily store this produced gas in an active production well.

(b) The Project will have the beneficial effect of storing produced gas that normally would be flared, which prevents waste and protects correlative rights, public health, and the environment.

(c) The Well and associated gathering system are located approximately twenty (20) miles west of Jal, New Mexico.

(d) The Project area is encompassed by a 320-acre horizontal spacing unit in which EOG is the sole mineral interest owner.

(e) EOG's reservoir characterization for the Upper Bone Spring Shale injection interval included a cross section and formation isopach. The characterization demonstrates that the formation is a siliceous mudstone with low permeability that will prohibit migration of the produced gas away from the wellbore and facilitate greater recovery of the produced gas. Additionally, the injection interval is bounded above and below by impermeable limestone formations that will prohibit the produced gas from migrating out of the Upper Bone Spring Shale.

(f) EOG's reservoir model demonstrates that produced gas will not migrate from the formation, interfere with other wells, or affect underground sources of drinking water ("USDWs").

(g) The Project will not cause a negative effect on ultimate well recovery or any remaining hydrocarbon resources in the injection interval.

(h) EOG will inject the produced gas through the Well to a TVD of 9,456 feet with a maximum allowable surface pressure ("MASP") of 3,500 psi.

(i) The well diagram depicts the casing, cementing, and perforation details of the Well.

(j) The Well is constructed with 5½-inch, 20 pound, P-110 production casing with a burst pressure rating equal to 12,640 psi.

(k) The casing burst pressure is greater than 120% of the MASP plus the hydrostatic pressure from a full column of reservoir fluid.

(l) The MASP will not exceed 90% of the horizon's propagation pressure minus the expected bottom hole hydrostatic pressure generated by a fluid column consisting of the injected gas.

(m) EOG performed a mechanical integrity test ("MIT") and completed a cement bond log ("CBL") for the Well on November 24, 2019.

(n) The MIT confirmed that the Well's casing is capable of a load which is at least 116 percent of **the MASP, which demonstrates mechanical integrity.**

(o) The CBL indicated that there is adequate cement coverage throughout the entire vertical length of the Well that will seal strata and provide sufficient tie-back between casing intervals.

(p) To determine the area of review ("AOR") for the Well, EOG used the horizontal segment of the Well as the center line and the endpoints based on the surface and bottom-hole locations to delineate the one-half mile radius.

(q) Within the AOR, EOG identified forty-five (45) producing wells and three (3) plugged wells that penetrate the injection interval, all of which are properly cased and cemented to prevent lateral and vertical migration of the produced gas.

(r) The source of the produced gas is the Bone Spring, Wolfcamp and Atoka formations.

(s) The produced gas will be delivered to the Well by a localized gas lift compressor station, and if necessary, an additional compressor station installed on site.

(t) The analysis of the gas sample collected from the Well indicates that the produced **gas does not contain appreciable volumes of corrosive gas such as H_2S or CO_2 that may damage the casing.**

(u) The produced gas will be injected through the tubing and the open annular space between the tubing and the production casing and will not require the use of a packer.

(v) EOG will install equipment on the Well to **prevent the surface pressure from exceeding the MASP.**

(w) The Project will **be conducted remotely through an existing Supervisory Control and Data Acquisition ("SCADA") system, including the collection of all relevant data for safe operations, such as production flow rate, injection gas flow rate, and surface pressure.**

(x) **EOG will prepare a response plan to address any environmental or engineering emergency that may occur during the Project.**

(y) During the Project, EOG will submit a Form C-115 each month that identifies the production volumes, injection volumes, pressures and days of operation.

(z) Following the completion of the Project, EOG will submit a report compiling the data collected by the SCADA system, including injection rates, injection volumes, injection durations, maximum surface pressure during injection, production rates, gas recovery rates, and delta pressures for adjacent wells during injection.

(aa) EOG provided proper notice to affected persons, including the surface landowner, and published notice in a newspaper with general circulation in the county where the Project is located.

(bb) Prior to the hearing, EOG presented the Project to representatives of the Bureau of Land Management and the New Mexico State Land Office.

(7) Marathon Oil Permian, LLC and BTA Oil Producers, LLC appeared at the hearing, but did not oppose the application. No other party appeared at the hearing or opposed the application.

(8) After the hearing and during the OCD's technical review of the Application, EOG submitted the calculations used to develop the MASP.

CONCLUSIONS OF LAW

(9) EOG has the technical capability, existing and planned infrastructure, and contingent plans to successfully implement the Project.

(10) The geologic and reservoir evidence demonstrates with reasonable probability that the injection interval can accommodate the produced gas, and that the produced gas will be contained within the injection interval.

(11) The Well is properly cased and cemented to protect USDWs within the Project area.

(12) The MASP of 3,500 psi will not degrade the mechanical integrity of the Well or cause fracturing in the injection interval or confining layers.

(13) Additional monitoring requirements are required to ensure that the Well complies with the MASP.

(14) The active and plugged wells located within the AOR are adequately cased and cemented such that they will not become a conduit for the escape of produced gas from the injection interval, and accordingly, no well within the AOR requires remedial work prior to implementing the Project.

(15) The Project will not, in reasonable probability, cause waste or harm correlative rights, public health, or the environment.

ORDER

(1) EOG is authorized to conduct the Project as described in Findings ¶¶ 1-6.

(2) EOG (OGRID 7377) is designated as the operator of the Project.

(3) EOG shall inject produced gas into the Well only from the Bone Spring, Wolfcamp, and Atoka formations.

(4) EOG shall inject produced gas that has a composition consistent with the gas sample analysis referenced in Finding ¶ 6(t).

(5) EOG shall deliver the produced gas to the Well through the existing gathering system, provided however that EOG may modify the gathering system to achieve the MASP of 3500 psi.

(6) EOG shall equip the Well with a pressure control device that limits the MASP to 3,500 psi.

(7) Following termination of the Project, EOG shall inspect and conduct a mechanical integrity test on the vertical portion of the Well in accordance with 19.15.16 NMAC.

(8) EOG shall monitor the Well with a SCADA system during the Project, **collect all relevant data for safe operations as specified in Fact** ¶ 6(z), and maintain the data for inspection at the request of OCD.

(9) EOG shall equip the Well to continuously monitor the pressure in the annulus between the 5½-inch and 8⅝-inch casings.

(10) EOG shall immediately notify the OCD's District I office supervisor and the Engineering Bureau if it detects an increase in the pressure in the annulus between the 5½-inch and 8⅝-inch casings.

(11) EOG shall conduct a test to determine if a fluid column of liquid occurs during a period of injection with high rate, volume, and pressure. The test shall include the following steps: (a) allow the Well to produce down the flowline until the standard production pressure has been reached within the annulus; (b) shut-in the Well for one (1) hour; and (c) take a fluid level reading by a commonly accepted method such as an echo meter. EOG may conduct additional tests using different methodology at its discretion. At least ten (10) business days prior to conducting the test, EOG shall submit the proposed test conditions and protocol for OCD's approval.

(12) EOG shall prepare and submit to the OCD's District I office supervisor and Engineering Bureau a plan specifying the procedures to address any environmental or engineering emergency during the Project. EOG shall provide written notice to the OCD's District I office supervisor and Engineering Bureau at least forty-eight (48) hours prior to commencing the injection of produced gas into the Well.

(13) EOG shall immediately notify the OCD's District I office supervisor and the Engineering Bureau in Santa Fe if the tubing or casing of the Well fails, or water, oil, or other fluid leaks from or around the Well or any well located within the AOR.

(14) If the tubing or casing of the Well fails, or water, oil, or other fluid leaks from or around the Well or any well located within the AOR, EOG shall take all steps as may be timely and necessary, or as otherwise directed by OCD, to correct such failure or leakage.

(15) The Project additionally shall comply with 19.15.26.9 & 10 NMAC.

(16) EOG shall submit monthly reports for the Project on Form C-115 in accordance with 19.15.26.13 NMAC. If OCD determines that Form C-115 is not appropriate to report the produced gas for the Project, EOG shall submit monthly reports for the produced gas for the Project on Form C-103.

(17) EOG shall provide written notice to the OCD's District I office supervisor and Engineering Bureau in Santa Fe upon termination of the Project.

(18) No later than ninety (90) days following termination of the Project, EOG shall file a report describing the operation and its findings and recommendations, including the information required by Findings ¶¶ 6(w) and (z), and Order ¶ 11.

(19) The authority granted by this Order shall terminate one year after the date of signature by the OCD Director, provided however that the OCD Director, upon the Engineering Bureau's recommendation or a written request from EOG for good cause shown, may extend the authority granted by this Order.

(20) EOG shall take all steps necessary to ensure that the produced gas enters only the injection interval and does not escape or infiltrate other formations or USDWs or onto the surface through other wells in the AOR.

(21) Notwithstanding the authority granted by this Order, EOG shall be responsible if the Project causes any harm or damage or threat of harm or damage to protectable fresh water, public health, or the environment.

(22)) Notwithstanding the authority granted by this Order, EOG shall be responsible for complying with all applicable OCD rules and any other state, federal, or local law or regulation.

(23) If OCD determines that EOG has failed to comply with this Order, OCD may, after notice and hearing, or without notice and hearing pursuant to NMSA 1978 §§ 70-2-23 or 70-2-31, take any action or impose any sanction authorized by the Oil and Gas Act or OCD rules.

(24) Jurisdiction of this case is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

SEAL

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

ADRIENNE SANDOVAL
Director

State of New Mexico
Energy, Minerals and Natural Resources Department

BEFORE THE OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Exhibit No. A-3
Submitted by: EOG Resources, Inc.
Hearing Date: October 5, 2023
Case No. 23810

EOG Resources
c/o Sarah Mitchell
E-mail: sarah_mitchell@eogresources.com

RE: **Order R-21061; Extension of Pilot Project**
GAS CAPTURE PILOT PROJECT INVOLVING THE OCCASIONAL INJECTION OF PRODUCED GAS INTO THE BONE SPRING FORMATION, LEA COUNTY, NEW MEXICO

Ms. Mitchell,

The Oil Conservation Division (OCD) has reviewed your request, received on January 28, 2021, to extend the authority granted by Order R-21061 for the Pilot Project that involves the intermittent injection of gas into well(s) including the Caballo 23 Federal No. 2H well (30-025-40051) ("the CLGC Well"). The request, which was received prior to the deadline, states that EOG Resources, Inc. (EOG) has concluded that the Pilot Project is a safe and effective way to significantly reduce flaring due to third party down time.

EOG observed an elevated pressure within the intermediate casing of the CLGC Well on August 24, 2022. The maximum pressure reached was 657 psi and injection into the CLGC Well was ceased.

Per the first supplemental information for this request, received on September 15, 2022, EOG requests to extend the authority granted by Order R-21061 for the purpose of temporary storage and recovery to prevent waste, reduce impacts associated with temporary interruptions of gas pipeline services and midstream operations, and to develop standard practices for similar projects.

EOG met with OCD on October 17, 2022, to discuss the circumstances that led to the elevated pressure within the intermediate casing of the CLGC Well. The pressure history for the CLGC Well indicates that there is a slow and steady increase in pressure of approximately 50 psi every 5 weeks that is unrelated to the injection activity. EOG believes that the source of the influx causing the slow and steady pressure increase is a formation shallower than the injection interval.

Per the second supplemental information for this request, received on October 28, 2022, EOG

requests to extend the authority granted by Order R-21061 through December 31, 2023, with the option of an additional extension, during which time EOG will pursue additional options for injection to increase flexibility and functionality of its closed loop gas capture activity. EOG proposed a pressure management procedure to manage the pressure within the intermediate casing of the CLGC Well.

With the additional requirements of this extension that are stated below, it is the OCD's understanding that Conclusions of Law Paragraphs 9 to 15 of Order R-21061 are accurate.

The OCD finds that for the reasons above, the granting of this request to extend Order R-21061 is in the interest of conservation, will prevent waste, and will protect the environment. Therefore, a two-year and eleven-month extension to Order R-21061 extending its termination date to December 31, 2023, is granted with the following conditions:

1. If the intermediate casing pressure exceeds five hundred pounds per square inch (500 psi) or the surface casing pressure exceeds one hundred pounds per square inch (100 psi); EOG shall notify the OCD Engineering Bureau at ocd.engineer@emnrd.nm.gov within twenty-four hours.
2. If the intermediate casing pressure exceeds one thousand pounds per square inch (1,000 psi); EOG shall immediately cease injection into the CLGC Well and within twenty-four hours notify the OCD Engineering Bureau at ocd.engineer@emnrd.nm.gov. EOG shall not recommence injection until approval to do so is granted by the OCD.
3. EOG shall monitor the intermediate casing pressure, but not bleed it down while injecting unless doing so is necessary for safety or the integrity of the CLGC Well.
4. When the intermediate casing pressure reaches 50 psi and the pressure increase is unrelated to injection, then EOG shall bleed the pressure down to 0 psi. EOG shall maintain a record of each time the intermediate casing is bled off that includes the date of each event and pressure just prior to bleeding it off. EOG shall review its record whenever the frequency of bleed off events warrants it and no less than once every three months to determine the rate at which pressure is increasing within the intermediate casing. If that increase is determined to be greater than 50 psi per month, then EOG shall cease injection into the well and notify the OCD Engineering Bureau at ocd.engineer@emnrd.nm.gov within twenty-four hours. EOG shall not recommence injection until approval to do so is granted by the OCD.
5. No further extensions of R-21061 shall be granted administratively.

All requirements of R-21061 remain in full force and effect.

DATE: 12/23/22

ADRIENNE SANDOVAL
Director

cc: Case File 20965
Well file 30-025-40051
Bureau of Land Management

Submit 1 Copy To Appropriate District Office
District I – (575) 393-6161
1625 N. French Dr., Hobbs, NM 88240
District II – (575) 748-1283
811 S. First St., Artesia, NM 88210
District III – (505) 334-6178
1000 Rio Brazos Rd., Aztec, NM 87410
District IV – (505) 476-3460
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-103
Revised July 18, 2013

WELL API NO.
30-025-40051

5. Indicate Type of Lease
STATE ☐ FEE ☐

6. State Oil & Gas Lease No.
N/A

SUNDRY NOTICES AND REPORTS ON WELLS
(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

7. Lease Name or Unit Agreement Name
Caballo 23 Fed

1. Type of Well: Oil Well ☒ Gas Well ☐ Other

8. Well Number 2H

2. Name of Operator
EOG Resources, Inc.

9. OGRID Number 7377

3. Address of Operator
P.O. Box 2267 Midland, Texas 79707

10. Pool name or Wildcat
Red Hills; Upper Bone Spring Shale

4. Well Location
Unit Letter C : 50 feet from the North line and 2200 feet from the West line
Section 23 Township 25S Range 33E NMPM County Lea

11. Elevation *(Show whether DR, RKB, RT, GR, etc.)*
3345' GR

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
PERFORM REMEDIAL WORK	☐	PLUG AND ABANDON	☐	REMEDIAL WORK	☐	ALTERING CASING	☐
TEMPORARILY ABANDON	☐	CHANGE PLANS	☐	COMMENCE DRILLING OPNS.	☐	P AND A	☐
PULL OR ALTER CASING	☐	MULTIPLE COMPL	☐	CASING/CEMENT JOB	☐		
DOWNHOLE COMMINGLE	☐						
CLOSED-LOOP SYSTEM	☐						
OTHER:	☐			OTHER: Pilot Project monitoring			☒

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 19.15.7.14 NMAC. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

Pursuant to Order R-21061, EOG respectfully makes the following notice.

During the afternoon of 08/24/2022, EOG observed above average (>450 psig) intermediate casing pressures during Closed Loop Gas Capture (CLGC) injection on the Caballo 23 Fed #2H (API No. 30-025-40051). Injection was occurring on the production casing/tubing annulus with a peak pressure of 916 psig. As injection took place, the intermediate casing pressure rose steadily to a peak of 657 psig. Injection was ceased due to this behavior and EOG engineers were notified. On the morning of 08/25/2022, the intermediate casing was bled down and quickly returned to 0 psig after returning ~0.5 BBL of water with no gas. EOG pumped ~0.5 BBL of water back in and pressured up the intermediate casing to 1,000 psig, holding for 30 minutes. The pressure was increased to 1,500 psig, held for 15 minutes, and then bled down. EOG did not observe any behavior that indicated communication to the production casing or surface casing. As gas injection resumed, pressure peaked at 335 psig at 20:15 CDT on 08/25/2022 and declined after that. Prior to bleeding off on 08/26/2022 at 08:46 CDT, the intermediate casing pressure was at 266 psig.

The NMOCD was notified at 09:39 CDT on 08/26/2022. At the request of Mr. Dean McClure, EOG bled the intermediate casing down again later in the afternoon. Prior to bleeding off, the pressure was at 18 psig. The intermediate casing was bled down, taking about 1 minute to flow off ~1/2 gallon of water. The casing was left open for 15 minutes with zero flow observed. The pressure has remained near 0 psig as of 08/29/2022, regardless of whether EOG has been injecting or producing.

Upon closer examination of the pressure trends and the difference in the temperature of the gas lift gas versus the CLGC gas, it appears that the pressure fluctuations observed can be attributed to thermal expansion. The CLGC gas was initially warmer than the gas lift gas previously being injected. It was also at a significantly higher rate, reaching 6,000 MSCFD versus the gas lift injection rate of 200 MSCFD. It appears that the increased flow of hot gas elevated the heat transfer between the production casing and intermediate casing annulus, allowing for thermal expansion of fluids and a corresponding pressure increase. When injection occurred overnight, the cooler ambient temperatures allowed for a decrease in pressure until daylight, forming a sinusoidal pattern. This behavior is in-line with what was previously observed on 05/18/2020 and described in the form C-103 filed on 05/28/2020. Based on the data collected, EOG does not believe that the intermediate casing pressures are due to pressure communication from CLGC injection.

Spud Date: Rig Release Date:

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE Sarah Mitchell TITLE DATE 8/30/2022

Type or print name Sarah Mitchell E-mail address: sarah_mitchell@eogresources.com PHONE: 432-848-9133

For State Use Only

APPROVED BY: Dean R McClure TITLE Petroleum Engineer DATE 09/01/2022

Conditions of Approval (if any):

- Conduct the bleed off test again at the peak pressure of its cycle if the intermediate pressure exceeds 300 psi and provide the Division with the results.
  - Bleed the pressure off
  - Monitor for flow for 15 minutes
  - Close the intermediate back in and monitor pressure
- Continue your protocol of contacting the Division if the intermediate pressure exceeds 450 psi.
- If the intermediate pressure exceeds 1000 psi, immediately cease injection and contact the Division.

Submit 1 Copy To Appropriate District Office
District I – (575) 393-6161
1625 N. French Dr., Hobbs, NM 88240
District II – (575) 748-1283
811 S. First St., Artesia, NM 88210
District III – (505) 334-6178
1000 Rio Brazos Rd., Aztec, NM 87410
District IV – (505) 476-3460
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-103
Revised July 18, 2013

WELL API NO.
30-025-40051

5. Indicate Type of Lease
STATE ☐ FEE ☐

6. State Oil & Gas Lease No.
N/A

SUNDRY NOTICES AND REPORTS ON WELLS
(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

7. Lease Name or Unit Agreement Name
Caballo 23 Federal

1. Type of Well: Oil Well ☒ Gas Well ☐ Other

8. Well Number 2H

2. Name of Operator
EOG Resources, Inc.

9. OGRID Number
7377

3. Address of Operator
P.O. Box 2267 Midland, Texas 79707

10. Pool name or Wildcat
Red Hills; Upper Bone Spring Shale

4. Well Location
Unit Letter___C_____:____50____feet from the __North_____ line and __2200_____feet from the _West_____line
Section 23 Township 25S Range 33E NMPM County Lea

11. Elevation *(Show whether DR, RKB, RT, GR, etc.)*
3345' GR

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
PERFORM REMEDIAL WORK	☐	PLUG AND ABANDON	☐	REMEDIAL WORK	☐	ALTERING CASING	☐
TEMPORARILY ABANDON	☐	CHANGE PLANS	☐	COMMENCE DRILLING OPNS.	☐	P AND A	☐
PULL OR ALTER CASING	☐	MULTIPLE COMPL	☐	CASING/CEMENT JOB	☐		
DOWNHOLE COMMINGLE	☐						
CLOSED-LOOP SYSTEM	☐						
OTHER:	☐			OTHER: Pilot project monitoring	☒		

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 19.15.7.14 NMAC. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

Pursuant to Order R-21061, EOG conducted an injection test on 5/18/2020. Initial intermediate casing pressure before injection was approximately 150 psi. Pressure was bled down and 2 gallons of fluid were recovered. After beginning injection test, the intermediate casing pressure increased to 130 psi. The casing was bled down again and less than 1 gallon of fluid was recovered and no gas was observed. The observed intermediate casing pressure increase was reported to the NMOCD Engineering Bureau and the decision was made to continue testing while closely monitoring the pressure. EOG continued closely monitoring the pressure through the duration of the injection test (approximately 4 days). The pressure cycled from peaks of 500-700 to lows of 200-400 psi, which correlated with the temperature variance of injection gas. After conclusion of injection test, the intermediate casing pressure fell back to a range of 75-150 psi. Based on these observations, the changes in the intermediate casing pressure are believed to be due to the temperature effect and ballooning effect of the 5-1/2" production casing while injecting high rates of warm gas.

Spud Date: | Rig Release Date:

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE Sarah Mitchell TITLE_Regulatory Contractor_____DATE___5/28/2020_____

Type or print name _Sarah Mitchell_____ E-mail address: sarah_mitchell@eogresources.com__ PHONE: _432-848-9133____

For State Use Only

APPROVED BY:_____TITLE_____DATE_____

Conditions of Approval (if any):

BEFORE THE OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Exhibit No. A-5
Submitted by: EOG Resources, Inc.
Hearing Date: October 5, 2023
Case No. 23810

STATE OF NEW MEXICO
DEPARTMENT OF ENERGY, MINERALS AND NATURAL RESOURCES
OIL CONSERVATION DIVISION

APPLICATION OF EOG RESOURCES, INC. FOR A TWO-YEAR EXTENSION OF ITS CLOSED LOOP GAS CAPTURE PILOT PROJECT AUTHORIZED UNDER ORDER NO R-21061, LEA COUNTY, NEW MEXICO.

CASE NO. 23810

SELF-AFFIRMED STATEMENT OF BRICE LETCHER, P.E., PRODUCTION ENGINEER

1. My name is Brice Letcher, P.E., and I am employed by EOG Resources, Inc. ("EOG") as a Production Engineer.

2. My responsibilities include the Permian Basin of New Mexico. I have previously testified before the New Mexico Oil Conservation Division as an expert witness in petroleum engineering and have had my credentials accepted as a matter of record by the Division.

3. I am familiar with the application filed by EOG in this matter and with the underlying facts and issues and have conducted an engineering review of the subject well and the one-mile area of review around the **Caballo 23 Federal Well No. 2H** (API No. 30-025-40051) (the "Well").

Well Workover & Mechanical Testing

4. As noted in Ryan Yarger's self-affirmed statement, EOG undertook additional work to further confirm the Well's mechanical integrity and verify the status of the Well to address the Division's concerns.

5. **EOG Exhibit B-1** provides a description of the workover procedure that EOG performed on the Well. In summary, EOG brought in a workover rig to pull the Well's tubing and conduct mechanical integrity tests of the production and intermediate casings. A retrievable bridge

plug was set at 9,083 feet measured depth ("MD") just above the kickoff point of 9,120 feet MD. EOG performed a mechanical integrity test ("MIT") on the 5-1/2 inch production casing by holding 1,600 psi for 30 minutes. In addition, EOG also tested the 8-5/8 inch intermediate casing at 1,000 psi for 30 minutes with 300 psi holding on the production casing. EOG provided advance notice of the MIT to the Division. Both tests verify the Well's mechanical integrity and its suitability for continued CLGC operations.

6. **EOG Exhibit B-2** is a copy of the MIT pressure charts. As the charts reflect, both tests were successful, confirming wellbore integrity.

7. In addition to conducting an MIT, EOG also reinstalled the Well's tubing with an AS1-X packer at 9,041 feet MD. The tubing packer will help limit effects of thermal expansion and will provide production casing isolation during CLGC injection operations, thereby providing additional operational safeguards.

8. **EOG Exhibit B-3** is an updated wellbore diagram reflecting the location of the tubing packer in the wellbore.

9. For normal production gas lift operations, gas lift injection will now occur through a gas lift mandrel with a check valve located above the packer at 9,028 feet MD, injecting gas down 5-1/2 inch casing and producing up 2-7/8 inch tubing. For CLGC operations, CLGC injection will be isolated to inject down the 2-7/8 inch tubing string. This is a significant change in approach for EOG, but the CLGC team believes it is safe and appropriate in this circumstance and will address the Division's concerns identified in the extension approval for Order R-21061.

Further Remedial Action is Not Warranted

10. Based on EOG's careful observations, data collected, and EOG's experience operating the Well, EOG does not believe additional remedial action to address the micro-annulus on the intermediate casing is necessary or prudent.

11. The Well passed MITs on both the intermediate and production casing and the intermediate casing does not take on fluid or hydrocarbons, confirming there is no communication within the wellbore or with the formation.

AOR Update

12. As part of its application to extend authorization of this Pilot Project, EOG conducted an updated area of review analysis.

13. **EOG Exhibit B-4** is a map depicting the location of the Well denoted with a black star at its surface location and a black line representing the approximate location of its horizontal wellbore. A dashed orange line represents the two-mile area of review in the shape of an oval around the perforated interval of the Well. All wells within the two-mile area are indicated on the map. There are approximately 552 wells with surface locations within the two-mile area of review.

14. A solid gray line represents the half-mile area of review, which is shaded light green, around the perforated interval of the Well. All wells partially within the half-mile area of review that penetrate the Bone Spring formation are indicated as being either green or red on the map and are identified with a reference number that may be cross-referenced in the separate tabulation of well data marked as **EOG Exhibit B-5**. Green wells are active producers. Red wells are plugged and abandoned. There are 53 active wells and 3 plugged and abandoned wells identified within the half-mile area of review.

15. There is no change in status to any the wells that were identified in the half-mile area of review under Order No. R-21061. Because the status of the wells is unchanged, EOG is not providing a copy of the wellbore schematics for the plugged and abandoned wells. Those wells have already been reviewed and analyzed under Order No. R-21061.

16. The tabulation of well data in EOG Exhibit B-6 includes well construction information for all wells that penetrate the Bone Spring formation. It provides detailed information on the well location, drilling, casing, cement, current completion, and current producing pool of each well. The only new wells within the half-mile area of review since Order No. R-21061 was issued are six wells that EOG drilled. They are identified in EOG Exhibit B-6 with red print.

17. Based on my analysis, wells within the area of review that penetrate the Bone Spring formation will not serve as a conduit for the injected gas into the Well to migrate out of the injection interval and are protective of correlative rights.

Notice

18. In addition to an updated area of review analysis, EOG also reviewed the affected parties to determine if there was a change to the parties entitled to notice.

19. **EOG Exhibit B-6** is a copy of a notice map prepared by EOG's land department identifying each operator within a half-mile notice area. The affected parties entitled to notice have not changed since Order No. R-21061 was issued. In addition to the operators of record identified, EOG provided notice to the BLM.

Conclusion

20. Given the Well's history, successful mechanical integrity test, and additional operational and notification safeguards that are in place, I agree that an extension of the CLGC

Pilot Project authority and continued use of the Well as a CLGC injector is justified and appropriate.

21. In my opinion, approval of this application is in the best interest of conservation, the prevention of waste, and protection of correlative rights.

22. Exhibits B-1 through B-6 were either prepared by me or compiled under my direction and supervision.

23. I affirm under penalty of perjury under the laws of the State of New Mexico that the foregoing statements are true and correct. I understand that this self-affirmed statement will be used as written testimony in this case. This statement is made on the date next to my signature below.

Brice Letcher, P.E.

10/3/2023
Date

Caballo 23 Fed #2H
API # 30-025-40051
50' FNL & 2200' FWL – Sec. 23-25S-33E
Lea County, New Mexico

Workover Procedure
AFE # 182862

Executive Summary:
Pull/scan tubing, perform an MIT of production and intermediate casing strings, and install packer.

TD: 14,110' **TVD:** 9,455' **PBTD:** 14,097' **GR:** 3,350' **KB:** 3,380'

Surface Casing: 11¾" 42# H-40 at 1,190'. Cemented with 650 sx. Cement circulated.
Intermediate Casing: 8⅝" 32# J-55 & HCK-55 at 5,005'. Cemented with 1,200 sx. Cement circulated.
Production Casing: 5½" 20# HCP-110 at 14,097'. Cemented with 1,450 sx. Est. TOC at 4,050'.
Producing Interval: Leonard perfs at 9,729'-14,060'

Workover Procedure:

1. MIRU well service unit and all necessary safety equipment.
2. ND WH, NU BOP and POOH scanning 2⅞" tubing, lay down any bad tubing joints and BHA.
3. TIH with bit and scraper to 9,100' then POOH.
4. TIH with 5½" RBP, set RBP at 9,080'. Circulate casing clean with treated fresh water to ensure we have a solid column of clean fluid.
5. **Note: Notify Kerry Fortner with NMOCD 24 hours prior to testing casing.**
   Pressure test 5½" production casing to 1,500 psi for 30 minutes recording on a 1-hour 3,000 psi chart. Also record intermediate casing pressure on a 1-hour 3,000 psi chart during 5½" casing test.
6. Bleed off 5½" casing pressure to 100 psi, then pressure test 8⅝" intermediate casing to 1,100 psi for 30 minutes recording on chart. Bleed off pressures.
7. Latch back on to RBP, release and POOH to lay down RBP.
8. TIH with 2⅞" L-80 production tubing, GL mandrel with checked orifice (Liberty Lift) and 10k AS1-X packer with on/off tool. Hydro test tubing while running back in. Set packer at 9,050' and hang off. Contact for Liberty Lift is Blake Bruyere (cell: 432-813-0980).

   BHA:
   2⅞" 6.5# L-80 tbg
   Gas lift mandrel with checked orifice 4' above on/off tool
   4' sub
   On/off tool
   5½" 10k AS1-X packer at 9,050'
   2 jts 2⅞" tbg
   XN-Nipple
   MS/EOT at ~9,115'

BEFORE THE OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Exhibit No. B-1
Submitted by: EOG Resources, Inc.
Hearing Date: October 5, 2023
Case No. 23810

9. ND BOP and NU production tree.

10. RDMO well service unit and return the well to Production.

Production Engineer: _____ **Date:** 8/25/2023
Brice A. Letcher, P.E.

Current BHA:

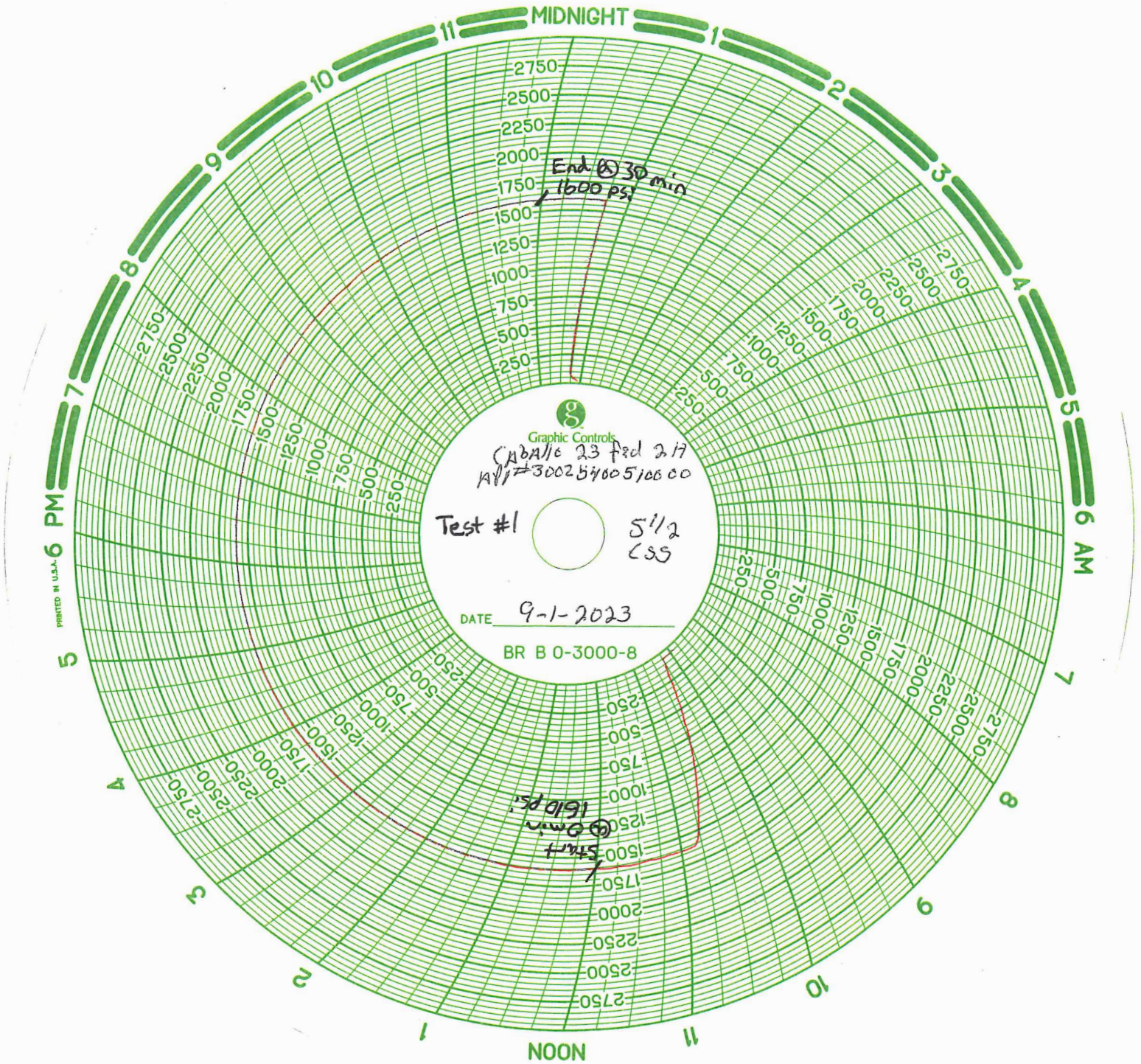
Item	Name	Ran In	Pulled	Length	# of Items	Joint #	Top Depth (Ft)	Bottom Depth (ft)	Inclination	OD (inch)
Tubing Hanger	Tubing Han	☑	☐	1.60	1		0	1.6	0.355	7
Tubing	Tubing	☑	☐	9,377.65	287	289	1.6	9379.25	46.35	2.875
XN-Nipple	XN-Nipple	☑	☐	1.10	1		9379.25	9380.35	46.35	2.875
Tubing	Tubing	☑	☐	32.76	1	2	9380.35	9413.11	50.7	2.875
Perforated Sub	Perforated	☑	☐	4.00	1		9413.11	9417.11	50.7	2.875
Tubing	Tubing	☑	☐	32.76	1	1	9417.11	9449.87	55.65	2.875
Beveled Collar	Beveled Co	☑	☐	0.45	1		9449.87	9450.32	55.65	2.875

AFE Codes:

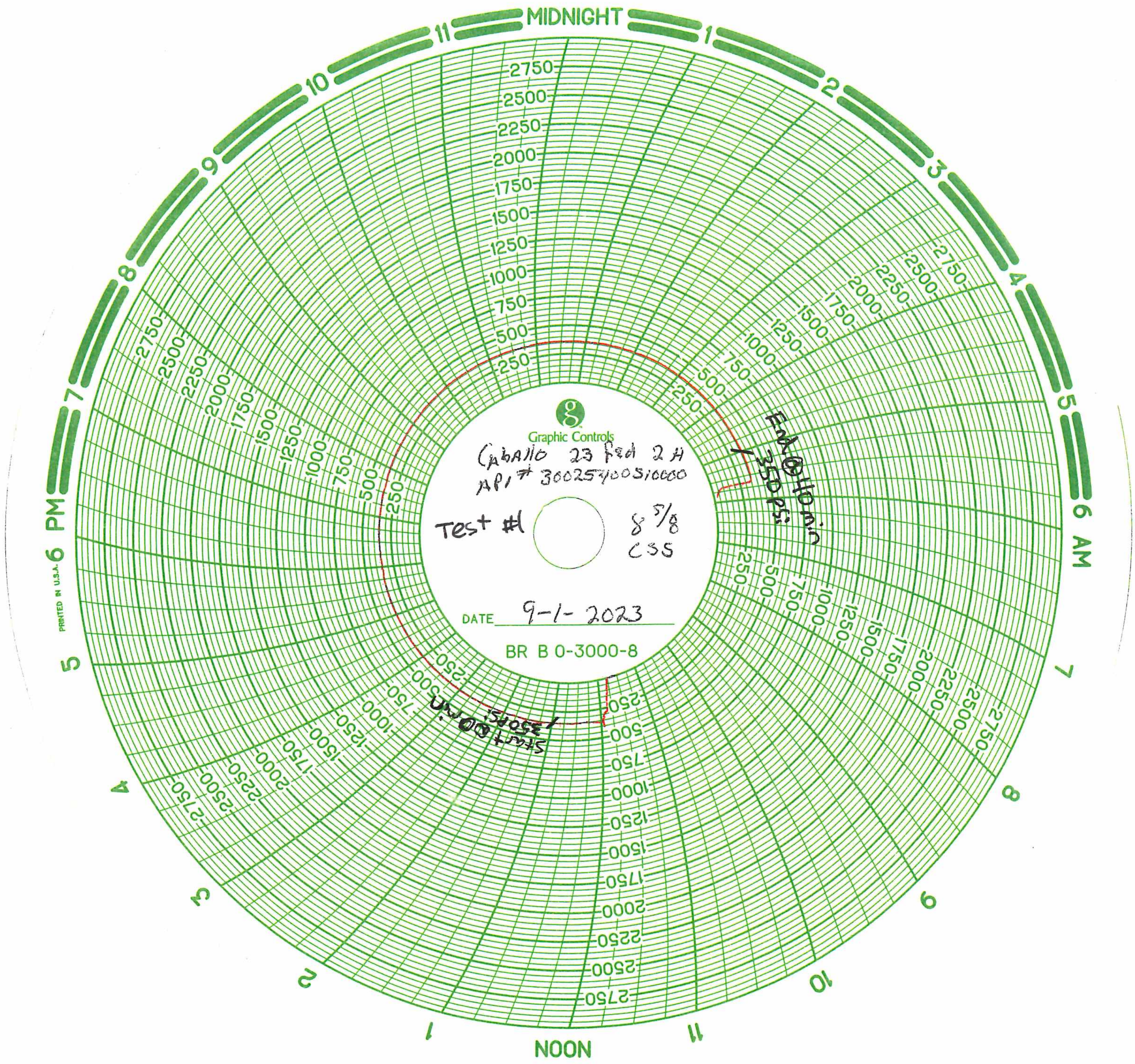
Code	Description
810-311	WO - Tubing
810-316	WO - Rods
810-317	WO - Pump Equipment/ Surface
810-318	WO - Pump Equipment/ Subsurface
810-206	WO - Water
810-207	WO - Chemical
810-216	WO - Transportation
810-218	WO - Equipment Rental
810-219	WO - Completions Rig
810-224	WO - Supervision
810-229	WO - Tubing Inspection/Handling
810-232	WO - Wireline Service
810-234	WO - Tubing Services (Hot Oil)

Emergency Contact Information

In the event of an accident/safety incident involving EOG employees or contract personnel contact:			
Name	**Title**	**Cell**	**Office**
Brian Chandler	Safety Manager	817-239-0251	
Ashley Mayfield	Sr. Safety Rep	432-258-7998	
In the event of a spill or environmental release contact:			
Name	**Title**	**Cell**	**Office**
Doug Lowrie	Environmental Manager	432-425-6923	
Production Department Contacts:			
Name	**Title**	**Cell**	**Office**
Mario Arevalo	NM Production Superintendent	940-231-8118	
Zack Jones	Production Foreman	432-488-8556	
Kyle Bangert	AL Tech/Lead Lease Op	575-390-3723	
Roberto Natividad	Lead Lease Op	432-310-4958	
Brice Letcher	Production Engineer	575-748-5021	
Clinton Cox	Production Manager	432-894-4920	
Ron Willett	Production Advisor	432-230-2135	
Completions Department Contacts:			
Name	**Title**	**Cell**	**Office**
Alex Richter	Completions Engineer Advisor	432-634-9148	432-686-3638
Police/Fire/Hospital Contacts			
Fire			911
Sheriff (Eddy County)			575-887-7551
Sheriff (Lea County)			575-396-3611
Hospital – Carlsbad Medical Center (Carlsbad, NM)			575-887-4100
Hospital – Lea Regional Medical Center (Hobbs, NM)			575-492-5000
Hospital – Nor-Lea General Hospital (Lovington, NM)			575-396-6611
Hospital – Winkler County Memorial Hospital (Kermit, TX)			432-586-5864



BEFORE THE OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Exhibit No. B-2
Submitted by: EOG Resources, Inc.
Hearing Date: October 5, 2023
Case No. 23810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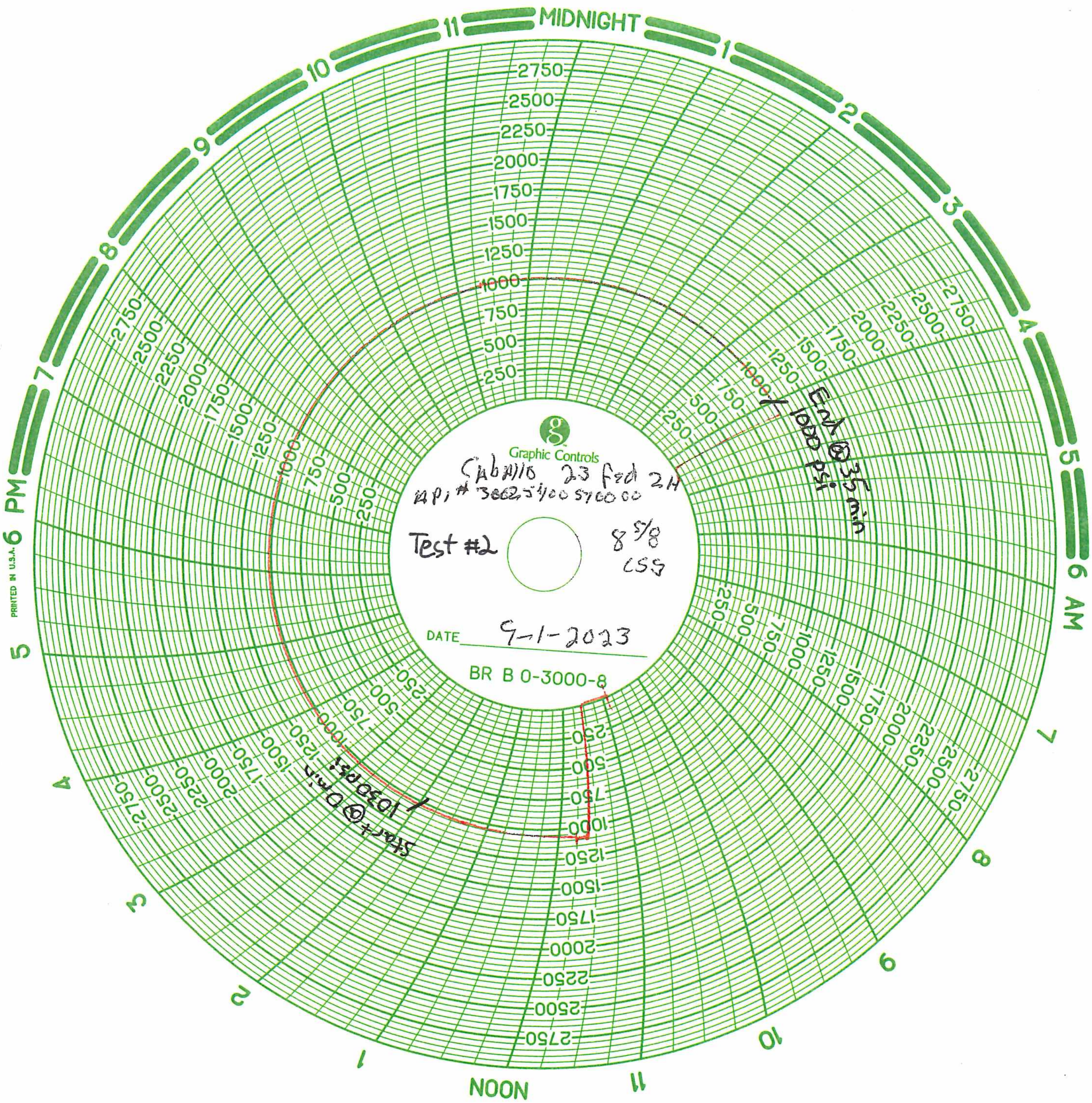
6 AM
NOON
6 PM
PRINTED IN U.S.A.
Graphic Controls
Caballo 23 Fed 2H
API # 30025400510000
Test #1
8 5/8
CSS
End @ 40 min
/ 350 psi
Start @ 0 min
/ 350 psi
DATE 9-1-2023
BR B 0-3000-8


MIDNIGHT
Graphic Controls
Cabalto 23 Fed 2H
API # 30025400570000
Test #2
8 5/8
CSG
DATE 9-1-2023
BR B 0-3000-8
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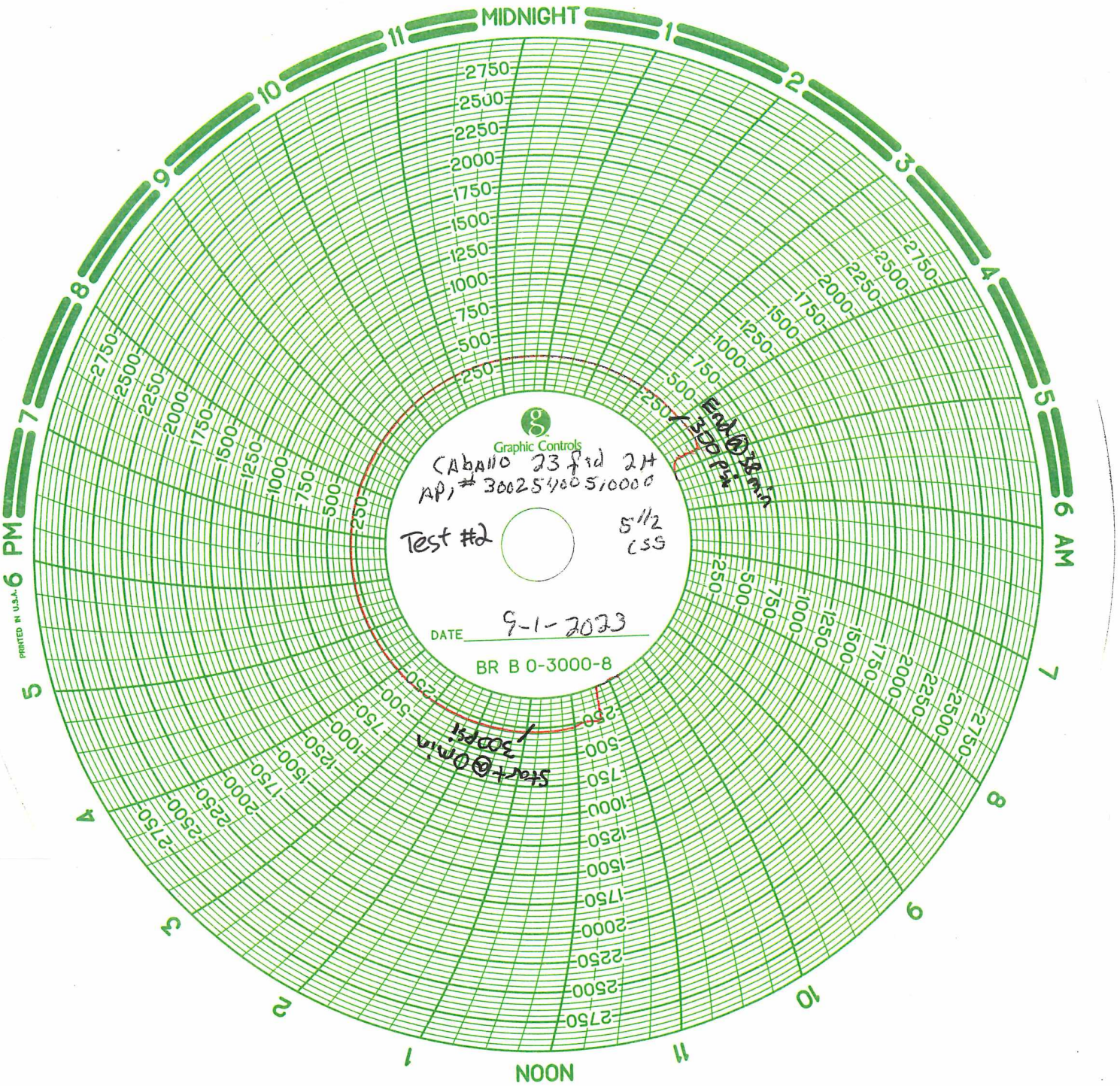
1000 psi
Start @ 0 min
1030 psi
NOON
PRINTED IN U.S.A.
PM
AM


MIDNIGHT
NOON
6 PM
6 AM
Graphic Controls
CAballo 23 fed 2H
API # 30025400510000
Test #2
5 1/2
CSS
DATE 9-1-2023
BR B 0-3000-8
Start @ 0 min
500 psi
End @ 30 min
500 psi
PRINTED IN U.S.A.

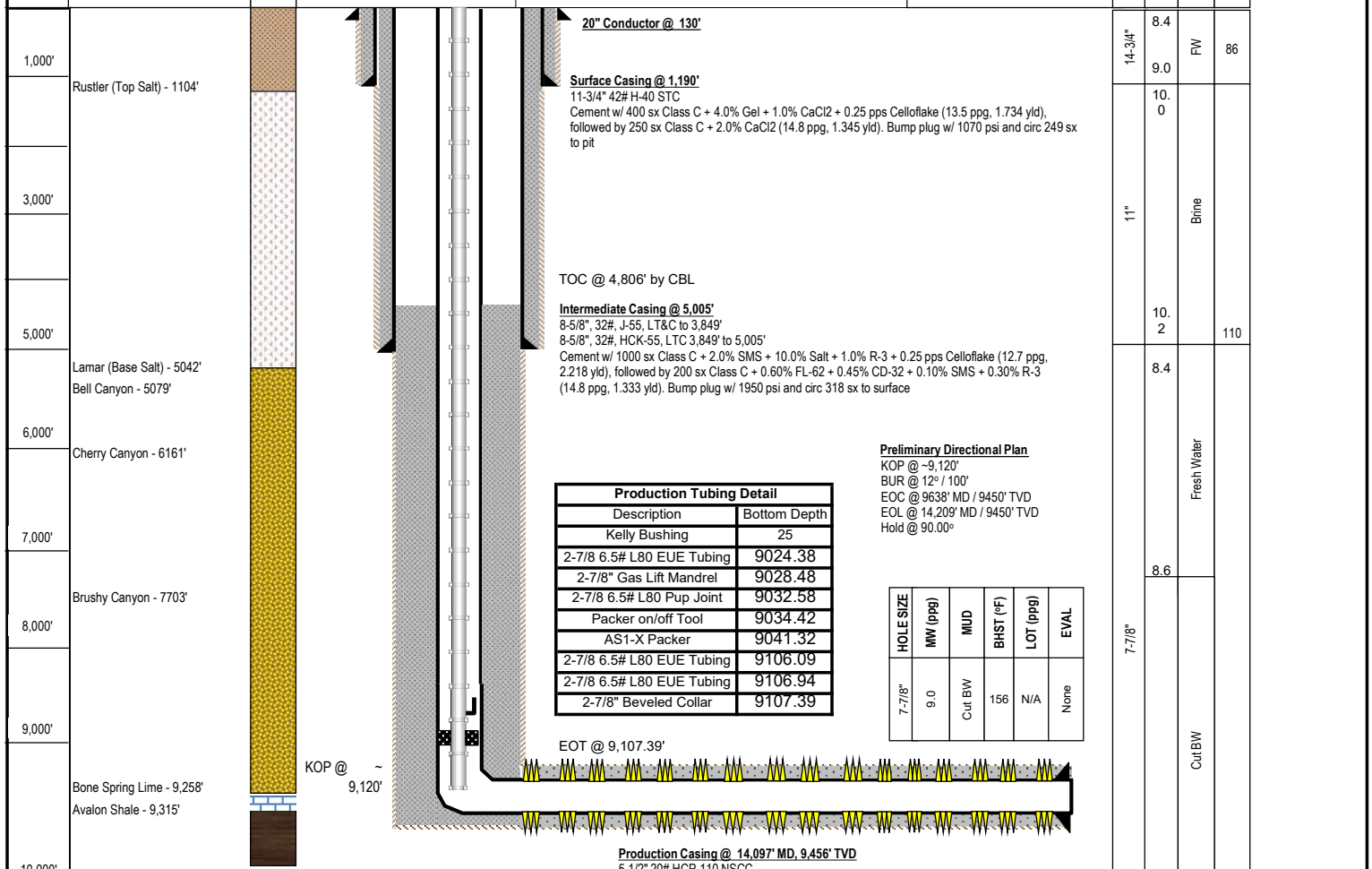
CURRENT WELL SKETCH

eog resources

OGRID: 7377
API: 30-025-40051

Caballo 23 Federal #2H
Red Hills Field
Lea County, New Mexico

SURF: 50' FNL & 2200' FWL
LOC: Sec. 23
SURVEY: T-25-S, R-33-E
GL: 3350.0'
KB: 3380.0'
ZERO: 30.0' AGL



20" Conductor @ 130'

Surface Casing @ 1,190'
11-3/4" 42# H-40 STC
Cement w/ 400 sx Class C + 4.0% Gel + 1.0% CaCl2 + 0.25 pps Celloflake (13.5 ppg, 1.734 yld), followed by 250 sx Class C + 2.0% CaCl2 (14.8 ppg, 1.345 yld). Bump plug w/ 1070 psi and circ 249 sx to pit

TOC @ 4,806' by CBL

Intermediate Casing @ 5,005'
8-5/8", 32#, J-55, LT&C to 3,849'
8-5/8", 32#, HCK-55, LTC 3,849' to 5,005'
Cement w/ 1000 sx Class C + 2.0% SMS + 10.0% Salt + 1.0% R-3 + 0.25 pps Celloflake (12.7 ppg, 2.218 yld), followed by 200 sx Class C + 0.60% FL-62 + 0.45% CD-32 + 0.10% SMS + 0.30% R-3 (14.8 ppg, 1.333 yld). Bump plug w/ 1950 psi and circ 318 sx to surface

Preliminary Directional Plan
KOP @ ~9,120'
BUR @ 12° / 100'
EOC @ 9638' MD / 9450' TVD
EOL @ 14,209' MD / 9450' TVD
Hold @ 90.00°

Production Tubing Detail	
Description	Bottom Depth
Kelly Bushing	25
2-7/8 6.5# L80 EUE Tubing	9024.38
2-7/8" Gas Lift Mandrel	9028.48
2-7/8 6.5# L80 Pup Joint	9032.58
Packer on/off Tool	9034.42
AS1-X Packer	9041.32
2-7/8 6.5# L80 EUE Tubing	9106.09
2-7/8 6.5# L80 EUE Tubing	9106.94
2-7/8" Beveled Collar	9107.39

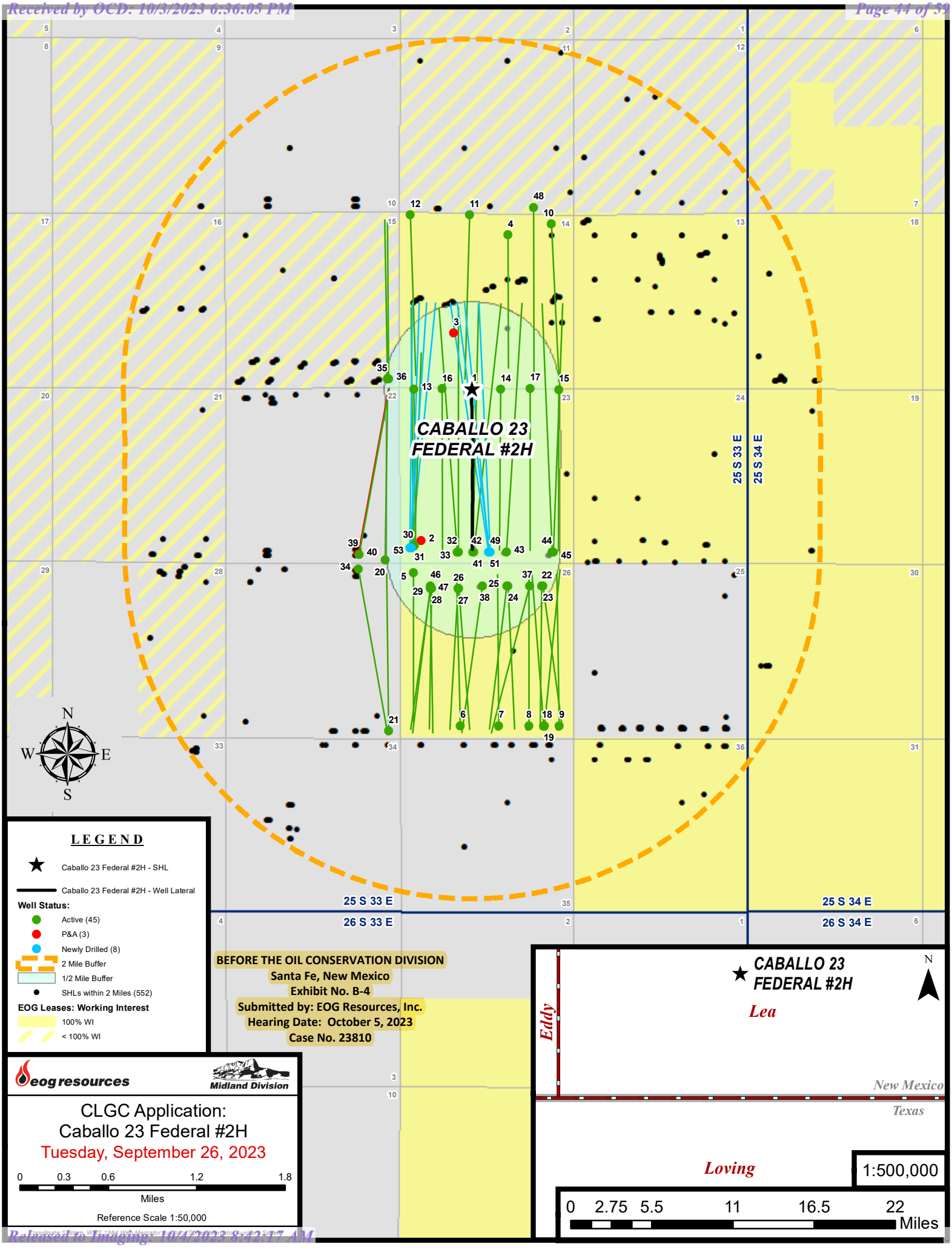
HOLE SIZE	MW (ppg)	MUD	BHST (°F)	LOT (ppg)	EVAL
7-7/8"	9.0	Cut BW	156	N/A	None

Production Casing @ 14,097' MD, 9,456' TVD
5-1/2" 20# HCP-110 NSCC
Cement w/ 150 sx 60:40:0 Class C + 15.0 pps BA-90 + 4.0% MPA-5 + 3.0% SMS + 5.0% A-10 + 1.0% BA-10A + 0.80% ASA-301 + 2.55% R-21 + 8.0 pps LCM-1 (10.8 ppg, 3.677 yld), followed by 400 sx 50:50:10 Class H + 0.80% FL-52 + 0.30% ASA-301 + 0.50% SMS + 2.0% Salt + 0.25% R-21 + 3.0 pps LCM-1 + 0.25 pps Celloflake + 0.005 pps Static Free (11.8 ppg, 2.382 yld), followed by 900 sx 50:50:2 Class H + 0.65% FL-52 + 0.45% CD-32 + 0.10% SMS + 2.0% Salt (14.2 ppg, 1.277 yld). Bump plug w/ 3000 psi - did not circ cement. TOC @ 4,806' by CBL.

HOLE SIZE	MW (ppg)	MUD	BHST (°F)
14-3/4"	8.4 – 9.0	FW	86
11"	10.0 – 10.2	Brine	110
7-7/8"	8.4 – 8.6	Fresh Water	
7-7/8"	8.6 – 9.3	Cut BW	156

Drlg Eng:	BL
Date:	9/5/2023

BEFORE THE OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Exhibit No. B-3
Submitted by: EOG Resources, Inc.
Hearing Date: October 5, 2023
Case No. 23810



LEGEND

- Caballo 23 Federal #2H - SHL
- Caballo 23 Federal #2H - Well Lateral

Well Status:

- Active (45)
- P&A (3)
- Newly Drilled (8)
- 2 Mile Buffer
- 1/2 Mile Buffer
- SHLs within 2 Miles (552)

EOG Leases: Working Interest

- 100% WI
- < 100% WI

BEFORE THE OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Exhibit No. B-4
Submitted by: EOG Resources, Inc.
Hearing Date: October 5, 2023
Case No. 23810

eog resources — Midland Division

CLGC Application:
Caballo 23 Federal #2H
Tuesday, September 26, 2023

0 0.3 0.6 1.2 1.8
Miles
Reference Scale 1:50,000

Map Legend Number	API Number	Operator Name	Lease Name	Well Num	Well Type	Status	FTG	N/S	FTG	E/W	Unit	Sec	Tship	Rng	Date Completion	Depth Total Driller	Depth True Vertical	Hole Size	Csg Size	Set At	SX CMT	CMT Top	MTD	DVT	Current Completion	Pool	Remarks
1	30-025-40051	EOG RESOURCES INC	CABALLO 23 FEDERAL	2H	P	Active	50	FNL	2200	FWL	C	23	25S	33E	02/03/2012	14110	9455	14-3/4"	11-3/4"	1190'	650	Surface	Circ.		9729-14060'	Red Hills; Upper Bone Spring Shale [97900]	
																		11"	8-5/8"	5005'	1200	Surface	Circ.				
																		7-7/8"	5-1/2"	14097'	1450	4050'	Calc.				
2	30-025-08387	HILL & MEEKER	MUSE-FEDERAL	1	P	P & A	660	FSL	660	FWL	M	23	25S	33E	10/26/1962	5159	5159	?	7"	534'	150	Surface	Circ.		N/A	N/A	Cored 5057-5109', 5109-5130', Plugged 0-50' (10 sxs), 534-584' (10 sxs), 1405-1505 (20 sxs), 4770-4820' (10 sxs), 5014-5114' (20 sxs)
3	30-025-34118	EOG RESOURCES INC	VACA 14 FEDERAL	1	P	P & A	1650	FSL	1650	FWL	K	14	25S	33E	10/06/1997	12600	12600	14-3/4"	11-3/4"	650'	400	Surface	Circ.				Plug 1: 9291-9191', Plug 2: 7813-7713', Plug 3: 6402-6302', Plug 4: 4895 4795', Plug 5: 700-600', Plug 6: Surface
																		11"	8-5/8"	4845'	1425	Surface	Cir.		N/A	N/A	
4	30-025-39327	EOG RESOURCES INC	VACA 14 FEDERAL	3	P	Active	660	FNL	1980	FEL	B	14	25S	33E	09/26/2009	13200	9486	17-1/2"	13-3/8"	1180'	1017	Surface	Circ.		9740-12890'	Red Hills; Upper Bone Spring Shale [97900]	
																		12-1/4"	9-5/8"	5153'	2200	Surface	Circ.				
																		8-3/4"	5-1/2"	13171'	1915	5250'	CBL				
5	30-025-39531	EOG RESOURCES INC	LOMAS ROJAS STATE COM 26	1H	P	Active	330	FNL	430	FWL	D	26	25S	33E	05/02/2010	13690	9415	17-1/2"	13-3/8"	718'	750	Surface	Circ.		9828'-13533'	Red Hills; Lower Bone Spring [51020]	
																		12-1/4"	9-5/8"	5085'	1500	Surface	Circ.				
																		8-3/4"	5-1/2"	13665'	2075	4600'	Calc.				
6	30-025-39701	EOG RESOURCES INC	LOMAS ROJAS 26 STATE COM	2H	P	Active	330	FSL	1850	FWL	N	26	25S	33E	06/26/2010	13792	9419	17-1/2"	13-3/8"	685'	675	Surface	Circ.		9736'-13650'	Red Hills; Lower Bone Spring [51020]	
																		12-1/4"	9-5/8"	4994'	1550	Surface	Circ.				
																		8-3/4"	5-1/2"	13790'	800	3790'	CBL				
7	30-025-39702	EOG RESOURCES INC	LOMAS ROJAS 26 STATE COM	3H	P	Active	330	FSL	2262	FEL	O	26	25S	33E	07/19/2010	13742	9436	17-1/2"	13-3/8"	690'	675	Surface	Circ.		9800-13601'	Red Hills; Lower Bone Spring [51020]	
																		12-1/4"	9-5/8"	5050'	1300	Surface	Circ.				
																		8-3/4"	5-1/2"	13731'	1975	4450'	CBL				
8	30-025-39703	EOG RESOURCES INC	LOMAS ROJAS 26 STATE COM	4H	P	Active	330	FSL	1350	FEL	O	26	25S	33E	08/04/2010	13850	9442	17-1/2"	13-3/8"	682'	675	Surface	Circ.		9910-13727'	Red Hills; Lower Bone Spring [51020]	
																		12-1/4"	9-5/8"	5162'	1500	Surface	Circ./Bradenhead squeeze				
																		8-3/4"	5-1/2"	13820'	1950	4600'	Calc.				
9	30-025-39704	EOG RESOURCES INC	LOMAS ROJAS 26 STATE COM	5H	P	Active	330	FSL	430	FEL	P	26	25S	33E	08/26/2010	13800	9444	17-1/2"	13-3/8"	688'	675	Surface	Circ.		9840-13711'	Red Hills; Lower Bone Spring [51020]	
																		12-1/4"	9-5/8"	5034'	1300	Surface	Circ.				
																		8-3/4"	5-1/2"	13792'	2000	4500'	Circ.				
10	30-025-39892	EOG RESOURCES INC	VACA 14 FEDERAL	4H	P	Active	330	FNL	660	FEL	A	14	25S	33E	08/08/2012	13800	9469	17-1/2"	13-3/8"	1238'	900	Surface	Circ.		9718-13750'	Red Hills; Upper Bone Spring Shale [97900]	
																		12-1/4"	9-5/8"	4957'	1325	Surface	Circ.				
																		8-3/4"	5-1/2"	13800'	1845	4600'	Calc.				
11	30-025-39943	EOG RESOURCES INC	VACA 14 FEDERAL	6H	P	Active	50	FNL	2130	FWL	C	14	25S	33E	11/04/2012	14150	9445	17-1/2"	13-3/8"	1249'	900	Surface	Circ.		9517-14050'	Red Hills; Upper Bone Spring Shale [97900]	
																		12-1/4"	9-5/8"	4995'	1325	Surface	Circ.				
																		8-3/4"	5-1/2"	14083'	2075	4600'	Calc.				
12	30-025-39944	EOG RESOURCES INC	VACA 14 FEDERAL COM	5H	P	Active	50	FNL	330	FWL	D	14	25S	33E	04/10/2011	14092	9422	17-1/2"	13-3/8"	1260'	585	Surface	Circ.		9735-13991'	Red Hills; Lower Bone Spring [51020]	
																		12-1/4"	9-5/8"	4993'	1350	Surface	Circ.				
																		8-3/4"	5-1/2"	14092'	1880	4050'	CBL				
13	30-025-40050	EOG RESOURCES INC	CABALLO 23 FEDERAL	1H	P	Active	50	FNL	440	FWL	D	23	25S	33E	07/17/2011	13985	9430	14-3/4"	11-3/4"	1163'	600	Surface	Circ.		9718-13864'	Red Hills; Lower Bone Spring [51020]	
																		11"	8-5/8"	4954'	1200	Surface	Circ.				
																		7-7/8"	5-1/2"	13965'	1465	4120'	CBL				
14	30-025-40052	EOG RESOURCES INC	CABALLO 23 FEDERAL	3H	P	Active	58	FNL	2200	FEL	B	23	25S	33E	02/06/2012	14045	9439	14-3/4"	11-3/4"	1181'	600	Surface	Circ.		9738-14000'	Red Hills; Upper Bone Spring Shale [97900]	
																		11"	8-5/8"	4995'	1100	Surface	Circ.				
																		7-7/8"	5-1/2"	14045'	1450	4700'	Calc.				
15	30-025-40053	EOG RESOURCES INC	CABALLO 23 FEDERAL	4H	P	Active	50	FNL	440	FEL	A	23	25S	33E	11/17/2011	14080	9449	14-3/4"	11-3/4"	1153'	600	Surface	Circ.		9804-13992'	Red Hills; Upper Bone Spring Shale [97900]	
																		11"	8-5/8"	4990'	1200	Surface	Circ.				
																		7-7/8"	5-1/2"	14080'	1435	4043'	Calc.				
16	30-025-40247	EOG RESOURCES INC	CABALLO 23 FEDERAL	5H	P	Active	40	FNL	1295	FWL	D	23	25S	33E	02/09/2012	14025	9437	14-3/4"	11-3/4"	1203'	650	Surface	Circ.		9771-13960'	Red Hills; Upper Bone Spring Shale [97900]	
																		11"	8-5/8"	4985'	1150	Surface	Circ.				
																		7-7/8"	5-1/2"	13987'	1450	4050'	Calc.				
17	30-025-40248	EOG RESOURCES INC	CABALLO 23 FEDERAL	6H	P	Active	20	FNL	1310	FEL	A	23	25S	33E	11/12/2011	14123	9485	14-3/4"	11-3/4"	1185'	600	Surface	Circ.		9862-14082'	Red Hills; Lower Bone Spring [51020]	
																		11"	8-5/8"	4990'	1100	Surface	Circ.				
																		7-7/8"	5-1/2"	14113'	1450	4050'	Calc.				
18	30-025-42156	EOG RESOURCES INC	LOMAS ROJAS 26 STATE COM	501H	P	Active	330	FSL	875	FEL	P	26	25S	33E	05/21/2016	15582	10849	17-1/2"	13-3/8"	1091'	1000	Surface	Circ.		10983-15444'	Red Hills; Lower Bone Spring [51020]	
																		12-1/4"	9-5/8""	4972'	1250	Surface	Circ.				
																		8-3/4"	5-1/2"	15582'	1925	1958'	CBL				
19	30-025-42157	EOG RESOURCES INC	LOMAS ROJAS 26 STATE COM	502H	P	Active	330	FSL	905	FEL	P	26	25S	33E	05/21/2016	15585	10843	17-1/2"	13-3/8"	1108'	1050	Surface	Circ.		11021-15482'	Red Hills; Lower Bone Spring [51020]	
																		12-1/4"	9-5/8""	4942'	1325	Surface	Circ.				
																		8-3/4"	5-1/2"	15585'	1925	2505'	CBL				
20	30-025-42414	BTA OIL PRODUCERS LLC	ROJO 7811 JV-P FEDERAL COM	2H	P	Active	50	FSL	430	FEL	P	22	25S	33E	05/06/2015	14092	9371	17-1/2"	13-3/8"	1174'	1040	Surface	Circ.		9556-14000'	Red Hills; Upper Bone Spring Shale [97900]	
																		12-1/4"	9-5/8""	5021'	1720	Surface	Circ.				

															8-3/4"	5-1/2"	14092'	1900	3380'	CBL			
21	30-025-42458	BTA OIL PRODUCERS LLC	ROJO C 7811 JV-P	1H	P	Active	190 FSL	380 FEL	P	27 25S	33E	12/18/2015	13858	9360	17-1/2"	13-3/8"	1175'	1000	Surface	Circ.	9528-13770'	Red Hills; Upper Bone Spring Shale [97900]	Pilot hole cement plugs @ 11750-12750', 10750-11750', 9750-10750', 8530-9750'
															12-1/4"	9-5/8"	5055'	1600	Surface	Circ.			
															8-3/4"	5-1/2"	13858'	2150	Surface	Circ.			
22	30-025-42567	EOG RESOURCES INC	LOMAS ROJAS 26 STATE COM	702H	P	Active	722 FNL	957 FEL	A	26 25S	33E	03/16/2016	17275	12530	14-3/4"	10-3/4"	1100'	680	Surface	Circ.	12767-17160'	Bobcat Draw; Upper Wolfcamp [98094]	
															9-7/8"	7-5/8"	10465'	2639	Surface	Circ./Bradenhead squeeze			
															6-3/4"	5-1/2"	17275'	725	8034'	Calc.			
23	30-025-42568	EOG RESOURCES INC	LOMAS ROJAS 26 STATE COM	701H	P	Active	721 FNL	927 FEL	A	26 25S	33E	04/11/2016	17218	12473	14-3/4"	10-3/4"	1127'	680	Surface	Circ.	12676-17072'	Bobcat Draw; Upper Wolfcamp [98094]	
															9-7/8"	7-5/8"	10480'	1370	50'	TS	5066'		
															6-3/4"	5-1/2" & 5"	17218'	715	8128'	Calc.			
24	30-025-42970	EOG RESOURCES INC	LOMAS ROJAS 26 STATE COM	703H	P	Active	721 FNL	1985 FEL	B	26 25S	33E	03/16/2016	17336	12447	14-3/4"	10-3/4"	1159'	723	Surface	Circ.	12738-17212'	Bobcat Draw; Upper Wolfcamp [98094]	
															9-7/8"	7-5/8"	10798'	801	900'	TS	5051'		
															6-3/4"	5-1/2" & 5"	17336'	872	7161'	Calc.			
25	30-025-42971	EOG RESOURCES INC	LOMAS ROJAS 26 STATE COM	704H	P	Active	721 FNL	2015 FEL	B	26 25S	33E	03/15/2016	17355	12493	14-3/4"	10-3/4"	1161'	745	Surface	Circ.	12833-17227'	Bobcat Draw; Upper Wolfcamp [98094]	
															9-7/8"	7-5/8"	10807'	3329	Surface	Circ./Bradenhead squeeze			
															6-3/4"	5-1/2"	17345'	651	5750'	CBL			
26	30-025-43218	EOG RESOURCES INC	LOMAS ROJAS 26 STATE COM	705H	P	Active	807 FNL	1806 FWL	C	26 25S	33E	10/23/2016	17480	12536	14-3/4"	10-3/4"	1154'	815	Surface	Circ.	12754-17345'	Bobcat Draw; Upper Wolfcamp [98094]	
															9-7/8"	7-5/8"	11217'	2134	1900'	TS			
															6-3/4"	5-1/2"	17471'	995	Surface	Circ.			
27	30-025-43219	EOG RESOURCES INC	LOMAS ROJAS 26 STATE COM	706H	P	Active	807 FNL	1776 FWL	C	26 25S	33E	10/23/2016	17423	12417	14-3/4"	10-3/4"	1159'	845	Surface	Circ.	12749-16795'	Bobcat Draw; Upper Wolfcamp [98094]	
															9-7/8"	7-5/8"	11210'	2842	Surface	Circ.			
															6-3/4"	5-1/2"	16921'	628	11260'	CBL			
28	30-025-43220	EOG RESOURCES INC	LOMAS ROJAS 26 STATE COM	707H	P	Active	806 FNL	979 FWL	D	26 25S	33E	11/20/2016	17421	12504	14-3/4"	10-3/4"	1157'	821	Surface	Circ.	12722-17313'	Bobcat Draw; Upper Wolfcamp [98094]	
															9-7/8"	7-5/8"	11198'	2000	Surface	Circ./Bradenhead squeeze			
															6-3/4"	5-1/2"	17421'	631	11293'	CBL			
29	30-025-43221	EOG RESOURCES INC	LOMAS ROJAS 26 STATE COM	708H	P	Active	806 FNL	949 FWL	D	26 25S	33E	11/20/2016	17264	12434	14-3/4"	10-3/4"	1182'	900	Surface	Circ.	12824-17142'	Bobcat Draw; Upper Wolfcamp [98094]	
															9-7/8"	7-5/8"	11311'	2913	Surface	Circ./Bradenhead squeeze			
															6-3/4"	5-1/2"	17254'	710	11306'	CBL			
30	30-025-43875	EOG RESOURCES INC	CABALLO 23 FEDERAL	701H	P	Active	494 FSL	426 FWL	M	23 25S	33E	08/19/2018	19904	12405	17-1/2"	13-3/8"	1197'	1020	Surface	Circ.	12612-19809'	Bobcat Draw; Upper Wolfcamp [98094]	
															12-1/4"	9-5/8"	4979'	1685	Surface	Circ.			
															8-3/4"	7-5/8"	11386'	510	2723'	Calc.			
															6-3/4"	5-1/2"	19904'	835	7476'	CBL			
31	30-025-43876	EOG RESOURCES INC	CABALLO 23 FEDERAL	702H	P	Active	494 FSL	461 FWL	M	23 25S	33E	08/19/2018	18398	12340	17-1/2"	13-3/8"	1197'	1220	Surface	Circ.	13656-18389'	Bobcat Draw; Upper Wolfcamp [98094]	
															12-1/4"	9-5/8"	4994'	1685	Surface	Circ.			
															8-3/4"	7-5/8"	11793'	510	1036'	Calc.			
															6-3/4"	5-1/2"	18388'	825	7476'	CBL			
32	30-025-43877	EOG RESOURCES INC	CABALLO 23 FEDERAL	703H	P	Active	300 FSL	1755 FWL	N	23 25S	33E	08/14/2018	19939	12422	17-1/2"	13-3/8"	1150'	985	Surface	Circ.	12668-19841'	Bobcat Draw; Upper Wolfcamp [98094]	
															12-1/4"	9-5/8"	4961'	1685	Surface	Circ.			
															8-3/4"	7-5/8"	11783'	470	1654'	Calc.			
															6-3/4"	5-1/2"	19929'	785	5710'	CBL			
33	30-025-43878	EOG RESOURCES INC	CABALLO 23 FEDERAL	704H	P	Active	300 FSL	1790 FWL	N	23 25S	33E	08/09/2018	19757	12341	17-1/2"	13-3/8"	1155'	985	Surface	Circ.	12660-19648'	Bobcat Draw; Upper Wolfcamp [98094]	
															12-1/4"	9-5/8"	4948'	1600	Surface	Circ.			
															8-3/4"	7-5/8"	11747'	475	1295'	Calc.			
															6-3/4"	5-1/2"	19747'	755	6300'	CBL			
34	30-025-44458	BTA OIL PRODUCERS LLC	ROJO 7811 27 FEE COM	010H	P	Active	220 FNL	1250 FEL	A	27 25S	33E	09/04/2018	17449	12524	17-1/2"	13-3/8"	1118'	945	Surface	Circ.	12780-17155'	Bobcat Draw; Upper Wolfcamp [98094]	
															12-1/4"	9-5/8"	4952'	1660	Surface	Circ.			
															8-3/4"	7"	12525'	1265	Surface	Circ.			
35	30-025-44536	EOG RESOURCES INC	STREETCAR 15 FEDERAL	501H	P	Active	249 FSL	358 FEL	P	15 25S	33E	08/14/2018	15610	10819	17-1/2"	13-3/8"	1220'	1260	Surface	Circ.	10910-15581'	Draper Mill; Bone Spring [96392]	
															12-1/4"	9-5/8"	4948'	1620	Surface	Circ.			
															8-3/4"	5-1/2"	15590'	1980	4840'	CBL			
36	30-025-44537	EOG RESOURCES INC	STREETCAR 15 FEDERAL	701H	P	Active	249 FSL	323 FEL	P	15 25S	33E	08/14/2018	17242	12404	17-1/2"	13-3/8"	1215'	1260	Surface	Circ.	12521-17200'	WC-025 G-09 S253309P; Upper Wolfcamp [98180]	
															12-1/4"	9-5/8"	4943'	1620	Surface	Circ.			
															8-3/4"	7-5/8"	11668'	515	2950'	Calc.			
															6-3/4"	5-1/2"	17223'	540	8480'	CBL			
37	30-025-45287	EOG RESOURCES INC	LOMAS ROJAS 26 STATE COM	503H	P	Active	713 FNL	1328 FEL	B	26 25S	33E	11/23/2018	15830	10835	17-1/2"	13-3/8"	1125'	1115	Surface	Circ.	11170-15786'	Red Hills; Lower Bone Spring [51020]	
															12-1/4"	9-5/8"	5060'	1420	Surface	Circ.			
															8-3/4"	5-1/2"	15810'	1982	4400'	CBL			
38	30-025-45288	EOG RESOURCES INC	LOMAS ROJAS 26 STATE COM	504H	P	Active	714 FNL	2518 FWL	C	26 25S	33E	11/24/2018	15768	10849	17-1/2"	13-3/8"	1174'	1125	Surface	Circ.	11100-15731'	Red Hills; Lower Bone Spring [51020]	
															12-1/4"	9-5/8"	4980'	1420	Surface	Circ.			
															8-3/4"	5-1/2"	15753'	2325	4400'	CBL			
39	30-025-45309	BTA OIL PRODUCERS LLC	ROJO 7811 22 FEDERAL COM	014H	P	P & A	220 FSL	1250 FEL	P	22 25S	33E	N/A	155	155	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	While drilling 17-1/2 surface hole at 155' the 20" conductor set at 80' washed our and fell down hole. 114 sxs cmt was pumped and circ. to surface.
40	30-025-45446	BTA OIL PRODUCERS LLC	ROJO 7811 22 FEDERAL COM	014Y	P	Active	220 FSL	1220 FEL	P	22 25S	33E	05/15/2019	17455	12527	17-1/2"	13-3/8"	1060'	965	Surface	Circ.	12800-17155'	Bobcat Draw; Upper Wolfcamp [98094]	4-1/2" liner set from 11887-17440' with 405sxs cmt.
															12-1/4"	9-5/8"	4979'	1690	Surface	Circ.			
															8-3/4"	7"	12593'	1100	1200'	Calc.			

41	30-025-45584	EOG RESOURCES INC	CABALLO 23 FED	705H	P	Active	300 FSL	2231 FWL	N	23	25S	33E	05/11/2019	19970	12454	12-1/4"	9-5/8"	1210'	660	Surface	Circ.	12720-19933'	Bobcat Draw; Upper Wolfcamp [98094]	
																8-3/4"	7-5/8"	11728'	1515	29'	Echo			
																6-3/4"	5-1/2"	19950'	825	7120'	CBL			
42	30-025-45585	EOG RESOURCES INC	CABALLO 23 FEDERAL	706H	P	Active	300 FSL	2264 FWL	N	23	25S	33E	05/11/2019	20010	12436	12-1/4"	9-5/8"	1210'	660	Surface	Circ.	12722-19971'	Bobcat Draw; Upper Wolfcamp [98094]	
																8-3/4"	7-5/8"	11777'	1752	Surface	Circ.			
																6-3/4"	5-1/2"	19988'	825	5720'	CBL			
43	30-025-45588	EOG RESOURCES INC	CABALLO 23 FEDERAL	709H	P	Active	300 FSL	2032 FEL	O	23	25S	33E	05/09/2019	20046	12450	12-1/4"	9-5/8"	1209'	690	Surface	Circ.	12611-20015'	Bobcat Draw; Upper Wolfcamp [98094]	
																8-3/4"	7-5/8"	11773'	1688	Surface	Circ.			
																6-3/4"	5-1/2"	20031'	760	4980'	CBL			
44	30-025-45589	EOG RESOURCES INC	CABALLO 23 FEDERAL	710H	P	Active	300 FSL	639 FEL	P	23	25S	33E	05/08/2019	19995	12490	12-1/4"	9-5/8"	1254'	690	Surface	Circ.	12810-19963'	Bobcat Draw; Upper Wolfcamp [98094]	
																8-3/4"	7-5/8"	11708'	1820	Surface	Circ.			
																6-3/4"	5-1/2"	19980'	825	5368'	CBL			
45	30-025-45623	EOG RESOURCES INC	CABALLO 23 FEDERAL	711H	P	Active	300 FSL	606 FEL	P	23	25S	33E	05/08/2019	20014	12481	12-1/4"	9-5/8"	1250'	690	Surface	Circ.	12840-19976'	Bobcat Draw; Upper Wolfcamp [98094]	
																8-3/4"	7-5/8"	11784'	1707	69'	Echo			
																6-3/4"	5-1/2"	19993'	825	5050'	CBL			
46	30-025-45755	EOG RESOURCES INC	LOMAS ROJAS 26 STATE COM	505H	P	Active	720 FNL	950 FWL	D	26	25S	33E	08/01/2019	15717	10827	17-1/2"	13-3/8"	1195'	1030	Surface	Circ.	11100-15686'	Red Hills; Lower Bone Spring [51020]	
																12-1/4"	9-5/8"	4957'	1327	Surface	Circ.			
																8-3/4"	5-1/2"	15702'	2215	3212'	CBL			
47	30-025-45756	EOG RESOURCES INC	LOMAS ROJAS 26 STATE COM	506H	P	Active	753 FNL	950 FWL	D	26	25S	33E	08/01/2019	15673	10827	17-1/2"	13-3/8"	1194'	1025	Surface	Circ.	11075-15644'	Red Hills; Lower Bone Spring [51020]	
																12-1/4"	9-5/8"	4965'	1325	Surface	Circ.			
																8-3/4"	5-1/2"	15697'	1820	3862'	CBL			
48	30-025-41523	EOG RESOURCES INC	VACA 11 FEDERAL	2H	P	Active	170 FSL	1200 FEL	P	11	25S	33E	05/30/2014	15675	10710	17-1/2"	13-3/8"	1236'	825	Surface	Circ.	11080-15410'	Red Hills; Lower Bone Spring [51020]	
																12-1/4"	9-5/8"	5018'	1350	Surface	Circ.			
																8-3/4"	5-1/2"	15675'	2230	2700'	CBL			
49	30-025-47295	EOG RESOURCES INC	CABALLO 23 FEDERAL	501H	P	Active	300 FSL	2524 FEL	O	23	25S	33E	5/30/2023	18381	10862	13-1/2"	10-3/4"	1222'	512	Surface	Circ.	10970-18358'	Red Hills; Lower Bone Spring [51020]	Drilled after the issuance of Order R-21061
																9-7/8"	8-5/8"	4991'	530	Surface	Circ.			
																6-3/4"	5-1/2"	18366'	460	Surface	Circ.			
50	30-025-47296	EOG RESOURCES, INC	CABALLO 23 FEDERAL	407H	P	Active	300 FSL	2557 FEL	O	23	25S	33E	5/30/2023	18138	10443	13-1/2"	10-3/4"	1221'	512	Surface	Circ.	10840-18115'	Red Hills; Lower Bone Spring [51020]	Drilled after the issuance of Order R-21061
																9-7/8"	8-5/8"	5025'	535	Surface	Circ.			
																6-3/4"	5-1/2"	18123'	685	Surface	Circ.			
51	30-025-47297	EOG RESOURCES, INC	CABALLO 23 FEDERAL	205H	P	Active	300 FSL	2541 FEL	O	23	25S	33E	5/30/2023	17505	10036	13-1/2"	10-3/4"	1237'	512	Surface	Circ.	10337-17482'	Red Hills; Lower Bone Spring [51020]	Drilled after the issuance of Order R-21061
																9-7/8"	8-5/8"	5011'	535	Surface	Circ.			
																6-3/4"	5-1/2"	17490'	685	Surface	Circ.			
52	30-025-47298	EOG RESOURCES, INC	CABALLO 23 FEDERAL	504H	P	Active	300 FSL	2574 FEL	O	23	25S	33E	5/30/2023	18408	10841	13-1/2"	10-3/4"	1220'	675	Surface	Circ.	11250-18385'	Red Hills; Lower Bone Spring [51020]	Drilled after the issuance of Order R-21061
																9-7/8"	8"	5016'	535	Surface	Circ.			
																6-3/4"	5-1/2"	18393'	685	Surface	Circ.			
53	30-025-50734	EOG RESOURCES, INC	CABALLO 23 FEDERAL	405H	P	Active	434 FSL	366 FWL	M	23	25S	33E	5/30/2023	18156	10502	16"	13-3/8"	1262'	680	Surface	Circ.	10660-18133'	Red Hills; Lower Bone Spring [51020]	Drilled after the issuance of Order R-21061
																11"	9-5/8"	5006'	635	Surface	Circ.			
																7-7/8"	5-1/2"	18141'	1010	Surface	Circ.			
54	30-025-50735	EOG RESOURCES, INC	CABALLO 23 FEDERAL	204H	P	Active	434 FSL	335 FWL	M	23	25S	33E	5/29/2023	17670	10015	16"	13-3/8"	1265'	340	Surface	Circ.	10160-17647'	Red Hills; Lower Bone Spring [51020]	Drilled after the issuance of Order R-21061
																11"	9-5/8"	5005'	740	Surface	Circ.			
																7-7/8"	5-1/2"	17655'	550	Surface	Circ.			
55	30-025-50736	EOG RESOURCES, INC	CABALLO 23 FEDERAL	506H	P	Active	434 FSL	350 FWL	M	23	25S	33E	5/29/2023	18437	10843	16"	13-3/8"	1261'	680	Surface	Circ.	10938-18413'	Red Hills; Lower Bone Spring [51020]	Drilled after the issuance of Order R-21061
																11"	9-5/8"	5002'	785	Surface	Circ.			
																7-7/8"	5-1/2"	18421'	1050	Surface	Circ.			
56	30-025-50737	EOG RESOURCES, INC	CABALLO 23 FEDERAL	304H	P	Active	434 FSL	320 FWL	M	23	25S	33E	5/29/2023	17750	10219	16"	13-3/8"	1262'	680	Surface	Circ.	10364-17724'	Red Hills; Lower Bone Spring [51020]	Drilled after the issuance of Order R-21061
																11"	9-5/8"	5009'	785	Surface	Circ.			
																8-3/4"	5-1/2"	17732'	860	Surface	Circ.			

Notice

- 1/2 Mile Buffer
- Caballo 23 Federal #2H

Operator

- EOG
- BTA
- XTO

25 S - 33 E

25 S - 34 E

BEFORE THE OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Exhibit No. B-6
Submitted by: EOG Resources, Inc.
Hearing Date: October 5, 2023
Case No. 23810

STATE OF NEW MEXICO
DEPARTMENT OF ENERGY, MINERALS AND NATURAL RESOURCES
OIL CONSERVATION DIVISION

APPLICATION OF EOG RESOURCES, INC. FOR A TWO-YEAR EXTENSION OF ITS CLOSED LOOP GAS CAPTURE PILOT PROJECT AUTHORIZED UNDER ORDER NO R-21061, LEA COUNTY, NEW MEXICO.

CASE NO. 23810

SELF-AFFIRMED STATEMENT OF PATRICK GEESAMAN, PETROLEUM GEOLOGIST

1. My name is Patrick Geesaman and I am employed by EOG Resources, Inc. ("EOG") as an Petroleum Geologist.

2. My responsibilities include the Permian Basin of New Mexico and Texas. I have not previously testified before the New Mexico Oil Conservation Division as an expert witness in petroleum geology. My resume, attached as **EOG Exhibit C-1**, outlines my education and work experience which I believe qualify me to testify as an expert in petroleum geology.

3. I am familiar with the application filed by EOG in this matter and with the underlying facts and issues and have conducted geologic review of the subject lands.

4. I prepared an analysis summarizing the geologic conditions at the location of the micro-annulus/cement channeling that was identified at or below the intermediate casing shoe in the Well at approximately 5,005 feet measured depth ("MD").

5. The Well's intermediate casing is set within a competent anhydrite at the base of the Ochoan Evaporite series, which is comprised of approximately 4,000 feet of alternating halite and anhydrite layers both of which are some of the best geologic seals on earth. Halite is both extremely impermeable and undergoes plastic deformation, meaning it flows over time rather than fracturing, resulting in few geologic conduits within this zone.

6. **EOG Exhibit C-2** is an exhibit I prepared with an inset map on the left that depicts a line of cross-section from A to A' with the **Caballo 23 Federal Well No. 2H** (API No. 30-025-40051) (the "Well") indicated by a red star. On the right side of the exhibit is a cross-section using well logs identified from A to A', including the Well.

7. Any fluids that might possibly escape from the Well at the location of the micro-annulus/cement channeling is unlikely to migrate upward from immediate vicinity of the well casing given the impermeable nature of the Ochoan Evaporites. The 4,000-foot band of evaporites serves as an effective geologic seal, creating a barrier to downward and upward migration, protecting shallow aquifers.

8. From the base of the Ochoan Evaporites and the bottom of the intermediate casing down to the target injection interval within the Avalon shale member of the Bone Spring formation there is more than 4,400 feet of interbedded silt, shale, and carbonates. This interbedded, mixed lithology of low-permeability intervals also limit the possibility of communication between the location of the intermediate casing and the injection interval within the Avalon Shale of the Bone Spring formation.

9. Thus, even if the micro-annulus/cement channeling were to extend down some distance into the Bell Canyon member of the Delaware Mountain Group, the interbedded, low-permeability intervals of silt, shale, and carbonate would likely prevent extensive vertical migration of fluids.

10. I also conducted a review of producing wells within the Delaware Mountain Group in the vicinity. The nearest producing well is approximately two miles away to the southeast and last produced just over 700 barrels of oil in 1984.

Conclusion

11. Based on my review of the geology in this area, it is my opinion that approval of this application will not impair correlative rights and will protect the environment and groundwater.

12. Exhibits C-1 through C-2 were either prepared by me or compiled under my direction and supervision.

13. I affirm under penalty of perjury under the laws of the State of New Mexico that the foregoing statements are true and correct. I understand that this self-affirmed statement will be used as written testimony in this case. This statement is made on the date next to my signature below.

Patrick Geesaman

Patrick Geesaman

10/3/2023

Date

Patrick Geesaman

2313 Maxwell Dr. Midland TX, 79705
Cell: (720) 938-0104
Email: Patrick_Geesaman@eogresources.com

EMPLOYMENT HISTORY:

Delaware Basin Geology and Geophysics Team Lead
EOG Resources, Midland, Texas — October 2020 to Current

- Managed staff of 12-14 geologists, geophysicists and geotechnical support
- Completed yearly evaluations of all reporting staff
- Collaborated with division planners to design yearly drilling program
- Assisted subsurface team in planning and execution of development activity that includes over 300 oil and gas wells per year
- Presented technical work at internal conferences
- Lead technical team meetings to share learnings across division
- Trained peers when they were promoted to management position
- Assisted in the interview process and hiring of new staff
- Performed recruitment at Colorado School of Mines for yearly intern program

Delaware Basin Geologist
EOG Resources, Midland, Texas — May 2018 to October 2020

- Planned horizontal development of assigned acreage with interdisciplinary team of reservoir engineer, mineral land, surface land and facilities engineers
- Presented material to management with interdisciplinary team for approval for expenditures including well drilling and completions
- Assisted in the drilling of 115 horizontal oil and gas wells by providing structural maps, geologic interpretation, and monitoring during drilling activities
- Worked with division petrophysicist to plan data acquisition programs for 3 pilots
- Mentored recently hired geologists

Delaware Basin Geologist
Anadarko Petroleum Corporation, Houston / Midland, Texas — Feb 2014 to May 2018

- Mapped reservoir properties of multiple productive intervals of the Delaware Basin
- Estimated oil and gas in place volumes on a per section basis for multiple formations
- Designed appraisal programs for a target interval in the Bone Spring formation and assisted in appraisal programs for other targets within the Wolfcamp formation
- Planned fully integrated data acquisition for upper Wolfcamp development
- Mapped reservoir characteristics of the upper Wolfcamp sands and interbedded shales
- Assisted in the planning, drilling and completion of approximately fifteen upper Wolfcamp wells, five upper Avalon wells, and one Second Bone Spring Sand well in Loving County, TX
- Worked as a geologist / project manager with multi-disciplinary team to plan three focused developments (5-10 sections) across Anadarko leasehold
- Evaluated stratigraphic column for potential development via reservoir mapping and competitor analysis
- Determined well spacing and co-development patterns for future development of Wolfcamp formation
- Collaborated with technical teams (petrophysics, mechanistic modelling) to improve current understanding of subsurface

EDUCATION:

Master of Science in Geology — Graduation Date: Fall 2013
Colorado School of Mines, Golden, CO — GPA: 3.96

Bachelor of Science in Earth Science, Geology Option — Graduation Date: Summer 2011
Montana State University, Bozeman, MT — GPA: 3.74

RELAVENT EXPERIENCE:

Geology Intern
ExxonMobil, Houston, Texas Summer 2013

- Correlated logs of the La Luna Formation of the Middle Magdelena basin of Colombia with a focus on the sequence stratigraphic framework
- Mapped La Luna Formation in a 3D seismic volume in structurally complex transpressional province of the Middle Magdalena Basin

Summer Field Assistant Summer 2012
Salt Sediment Interaction Consortium, South Australia, Australia

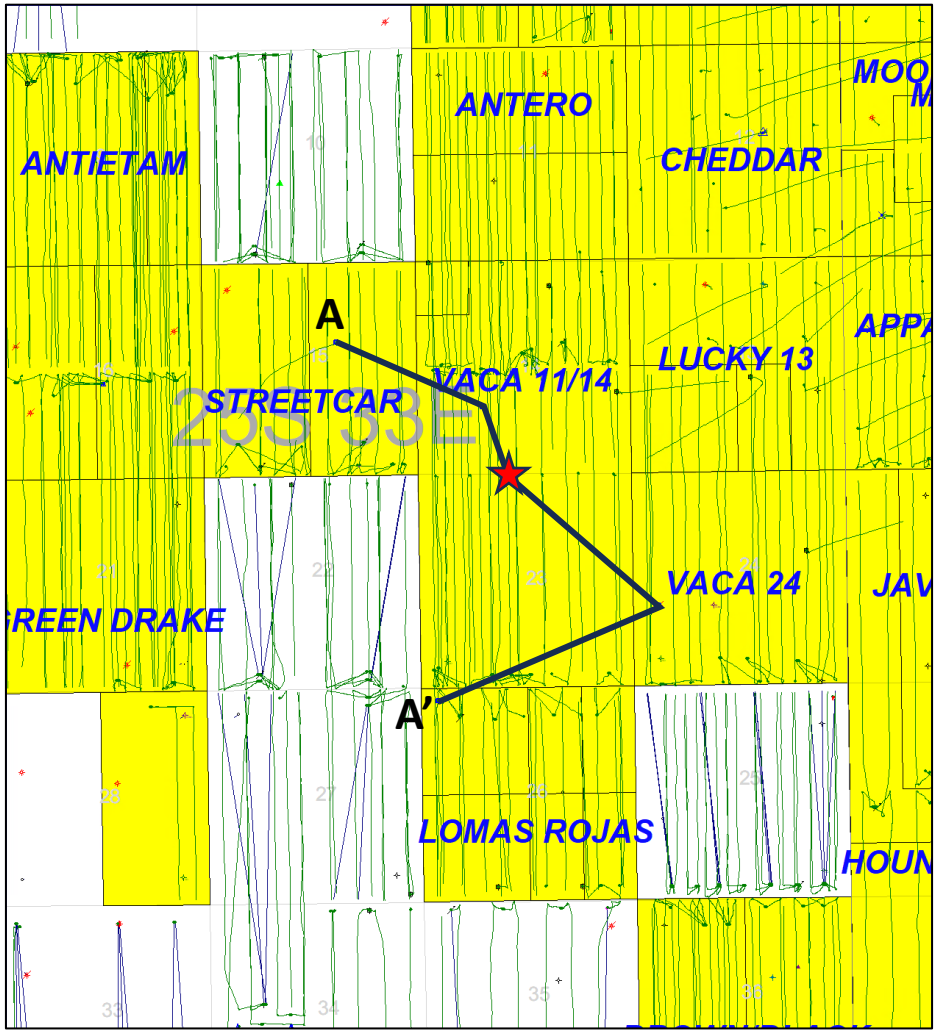
- Assisted in mapping multi-faceted structures associated with salt tectonics in the Flinders Ranges, South Australia
- Focused on structural geometries & stratigraphy related with salt diapirs & allochthonous salt

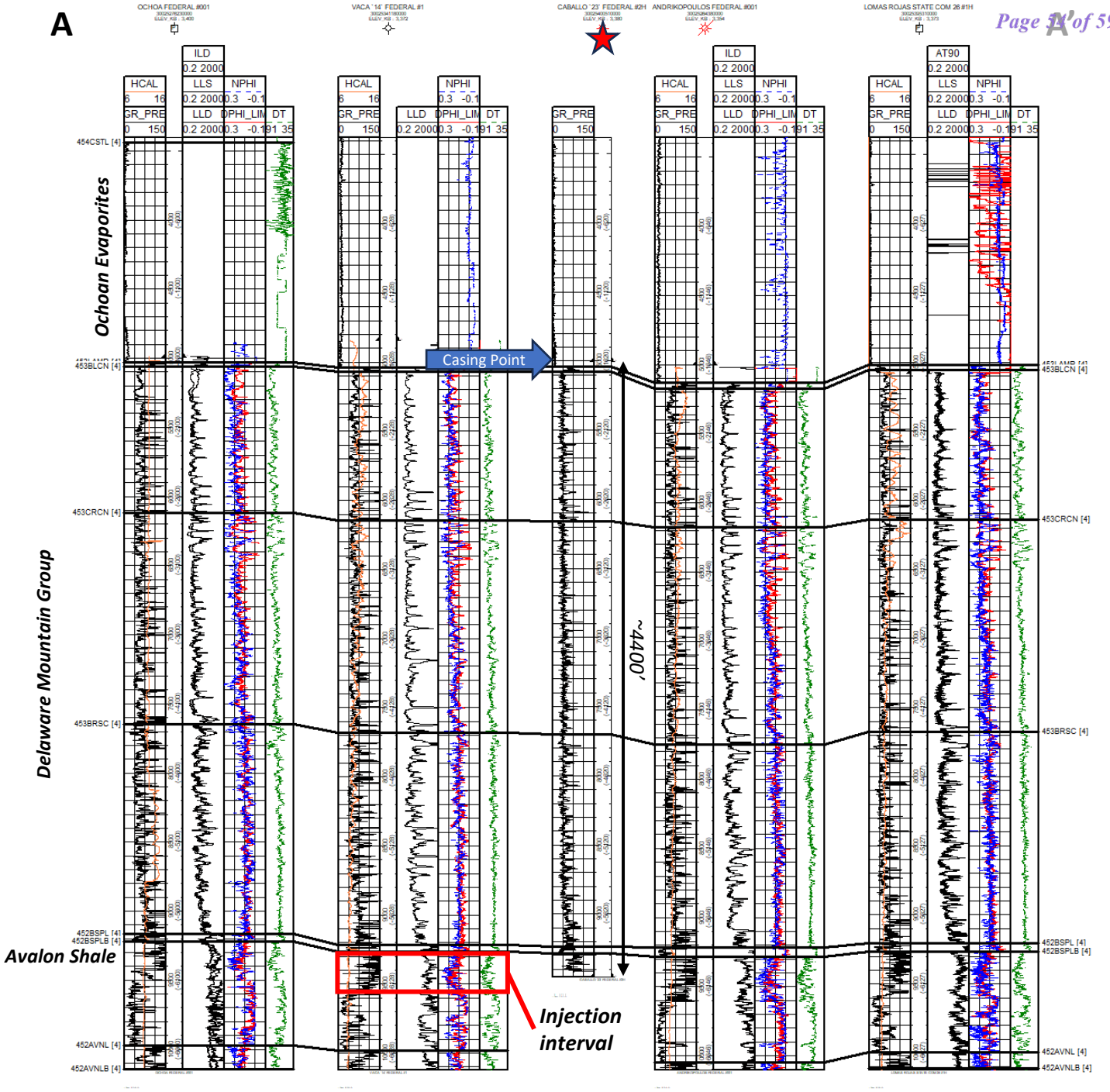
Field Assistant Summer 2011
Montana State Carbon Sequestration Research, Northwest Montana

- Mapped complicated thrust fault geometries in the fold and thrust belt of NW Montana

Field Assistant Summer 2010
Montana State Sedimentary Geology Lab, Spain, France, Italy

- Measured multiple detailed stratigraphic sections of submarine sandstones; reported grain sizes, collected field samples, and photographed outcrops
- Interpreted photo mosaics
- Communicated with locals and purchased groceries, maps, and other day to day tasks; field logistics





BEFORE THE OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Exhibit No. C-2
Submitted by: EOG Resources Inc.
Hearing Date: October 5, 2023
Case No. 23810

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

APPLICATION OF EOG RESOURCES, INC. FOR A TWO-EAR EXTENSION OF ITS CLOSED LOOP GAS CAPTURE PILOT PROJECT AUTHORIZED UNDER ORDER NO R-21061, LEA COUNTY, NEW MEXICO.

CASE NO. 23810

AFFIDAVIT

STATE OF NEW MEXICO)
) ss.
COUNTY OF SANTA FE)

Adam G. Rankin, attorney in fact and authorized representative of the Applicant herein, being first duly sworn, upon oath, states

1. The above-referenced application and notice of the hearing on this application was sent by certified mail to the affected parties on the date set forth in the letter attached hereto.

2. The spreadsheet attached hereto contains the names of the parties to whom notice was provided.

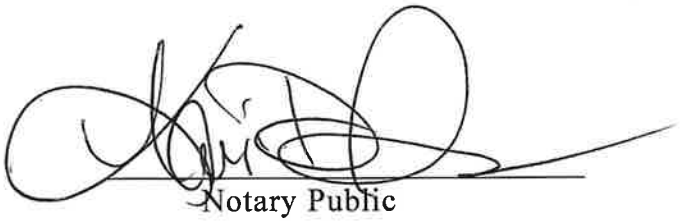
3. The spreadsheet attached hereto contains the information provided by the United States Postal Service on the status of the delivery of this notice as of October 2, 2023.

4. I caused a notice to be published to all parties on September 17, 2023. An affidavit of publication from the publication's legal clerk with a copy of the notice publication is attached as Exhibit E.

Adam G. Rankin

BEFORE THE OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Exhibit No. D
Submitted by: EOG Resources, Inc.
Hearing Date: October 5, 2023
Case No. 23810

SUBSCRIBED AND SWORN to before me this 3rd day of October, 2023 by Adam G. Rankin.



Notary Public

My Commission Expires:

6/28/26

STATE OF NEW MEXICO
NOTARY PUBLIC
KARI D PEREZ
COMMISSION # 1138272
COMMISSION EXPIRES 06/28/2026

Holland & Hart

Adam G. Rankin
Partner
Phone (505) 988-4421
agrankin@hollandhart.com

September 15, 2023

VIA CERTIFIED MAIL
CERTIFIED RECEIPT REQUESTED

TO: ALL AFFECTED PARTIES

Re: Application of EOG Resources, Inc. for a Two-Year Extension of its Closed Loop Gas Capture Pilot Project Authorized Under Order No. R-21061, Lea County, New Mexico.
Caballo 23 Fed No. 2H Well

Ladies & Gentlemen:

This letter is to advise you that EOG Resources, Inc. has filed the enclosed application with the New Mexico Oil Conservation Division. A hearing has been requested before a Division Examiner on October 5, 2023, and the status of the hearing can be monitored through the Division's website at https://www.emnrd.nm.gov/ocd/.

Due to the remodeling of the state building where the New Mexico Oil Conservation Division is located, hearings will be conducted remotely beginning at 8:15 a.m. To participate in the electronic hearing, see the instructions posted on the OCD Hearings website: https://www.emnrd.nm.gov/ocd/hearing-info/.

You are not required to attend this hearing, but as an owner of an interest that may be affected by this application, you may appear and present testimony. Failure to appear at that time and become a party of record will preclude you from challenging the matter at a later date. Parties appearing in cases are required to file a Pre-hearing Statement four business days in advance of a scheduled hearing that complies with the provisions of NMAC 19.15.4.13.B.

If you have any questions about this matter please contact Sarah Mitchell, at (432) 848-9133 or sarah_mitchell@eogresources.com.

Sincerely,

Adam G. Rankin
ATTORNEY FOR EOG RESOURCES, INC.

EOG - Caballo CLGC Extention - Case no. 23810
Postal Delivery Report

9414811898765413394894	BTA Oil Producers, LLCAttn Willis Price Land Manager	104 S Pecos St	Midland	TX	79701-5021	Your package will arrive later than expected, but is still on its way. It is currently in transit to the next facility.
9414811898765413394849	XTO Energy Attn Permian Basin Land Department	22777 Springwoods Village Pkwy	Spring	TX	77389-1425	Your item was delivered to an individual at the address at 9:39 am on September 22, 2023 in SPRING, TX 77379.
9414811898765413394887	COG Operating LLC Attn Land Department	600 W Illinois Ave	Midland	TX	79701-4882	Your package will arrive later than expected, but is still on its way. It is currently in transit to the next facility.
9414811898765413394832	Bureu of Land Management	301 Dinosaur Trl	Santa Fe	NM	87508-1560	Your item was delivered to an individual at the address at 12:30 pm on September 21, 2023 in SANTA FE, NM 87508.
9414811898765413394870	Bureu of Land Management	320 E Greene St	Carlsbad	NM	88220-6269	Your item has been delivered to an agent for final delivery in CARLSBAD, NM 88220 on September 25, 2023 at 1:00 pm.

Affidavit of Publication

STATE OF NEW MEXICO
COUNTY OF LEA

I, Daniel Russell, Publisher of the Hobbs News-Sun, a newspaper published at Hobbs, New Mexico, solemnly swear that the clipping attached hereto was published in the regular and entire issue of said newspaper, and not a supplement thereof for a period of 1 issue(s).

Beginning with the issue dated
September 17, 2023
and ending with the issue dated
September 17, 2023.

Publisher

Sworn and subscribed to before me this
17th day of September 2023.

Business Manager

My commission expires
January 29, 2027
(Seal)

STATE OF NEW MEXICO
NOTARY PUBLIC
GUSSIE RUTH BLACK
COMMISSION # 1087526
COMMISSION EXPIRES 01/29/2027

This newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Laws of 1937 and payment of fees for said publication has been made.

LEGAL NOTICE
September 17, 2023

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
SANTA FE, NEW MEXICO

The State of New Mexico, Energy Minerals and Natural Resources Department, Oil Conservation Division ("Division") hereby gives notice that the Division will hold public hearings before a hearing examiner on the following cases. The hearings will be conducted remotely on Thursday, October 5, 2023, beginning at 8:15 a.m. To participate in the hearings, see the instructions posted below. The docket may be viewed at https://www.emnrd.nm.gov/ocd/hearing-info/ or obtained from Marlene Salvidrez, at Marlene.Salvidrez@emnrd.nm.gov. Documents filed in these cases may be viewed at https://ocdimage.emnrd.nm.gov/Imaging/Default.aspx. If you are an individual with a disability who needs a reader, amplifier, qualified sign language interpreter, or other form of auxiliary aid or service to attend or participate in a hearing, contact Marlene Salvidrez at Marlene.Salvidrez@emnrd.nm.gov, or the New Mexico Relay Network at 1-800-659-1779, no later than September 25, 2023.

Persons may view and participate in the hearings through the following link: https://nmemnrd.webex.com/nmemnrd/j.php?MTID=m020a671a1f0dca6e32980a60729bbb0f

Webinar number: 2488 867 1311

Join by video system: 24888671311@nmemnrd.webex.com You can also dial 173.243.2.68 and enter your webinar number

Join by phone: 1-844-992-4726 United States Toll Free
+1-408-418-9388 United States Toll

Access code: 2488 867 1311
Panelist password: EiMmNJYA667 (34666592 from phones and video systems)

STATE OF NEW MEXICO TO:
All named parties and persons having any right, title, interest or claim in the following case and notice to the public.

(NOTE: All land descriptions herein refer to the New Mexico Principal Meridian whether or not so stated.)

To: All affected interest owners, including: BTA Oil Producers, LLC; XTO Energy; COG Operating LLC, and Bureau of Land Management.

Case No. 23810: Application of EOG Resources, Inc. for a Two-Year Extension of its Closed Loop Gas Capture Pilot Project Authorized Under Order No. R-21061, Lea County, New Mexico. Applicant in the above-styled cause seeks an order authorizing a two-year extension of its closed loop gas capture pilot project approved under Order No. R-21061 until December 31, 2025 ("Pilot Project"), with the option to request additional two-year extensions. EOG is authorized under Order R-21061 to use the **Caballo 23 Fed No. 2H** Well (API No. 30-025-40051) to engage in a closed loop gas capture pilot project to occasionally inject produced gas into the Leonard Shale interval of the Bone Spring formation at a total vertical depth of approximately 9,418 feet to 9,457 feet along the horizontal portion of the wellbore at surface injection pressures of no more than 3,500 psi. The source of the produced gas is the Bone Spring, Wolfcamp, and Atoka formations. The well is a horizontal well located in the E/2 W/2 (Unit C) of Section 23, Township 25 South, Range 33 East, NMPM, in Lea County,New Mexico. It is currently producing from the Bone Spring formation(Red Hills; Upper Bone Spring Shale Pool [Pool Code 97900]) and dedicated to a standard horizontal well spacing unit comprised of the E/2W/2 of Section 23. The subject acreage is located approximately 20 miles west of Jal, New Mexico.
#00282834

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00282834

HOLLAND & HART LLC
PO BOX 2208
SANTA FE, NM 87504-2208

BEFORE THE OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Exhibit No. E
Submitted by: EOG Resources, Inc.
Hearing Date: October 5, 2023
Case No. 23810