

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

**APPLICATION OF OXY U.S.A. INC. AND
OCCIDENTAL PERMIAN, LTD FOR A
CLOSED LOOP GAS CAPTURE PILOT
PROJECT, EDDY COUNTY, NEW
MEXICO.**

CASE NO. _____

APPLICATION

OXY USA Inc. (OGRID No. 16696) and Occidental Permian, LTD (OGRID No. 157984), (collectively “OXY” or “Applicant”)¹ through its undersigned attorneys, hereby files this application with the New Mexico Oil Conservation Division for an order authorizing OXY to engage in a Closed Loop Gas Capture (“CLGC”) injection pilot project in the Second Bone Spring interval within the Bone Spring formation (“Pilot Project”). In support of this application, OXY states:

PROJECT SUMMARY

1. OXY proposes to initiate CLGC injection within a non-contiguous project area of 8,240-acre, more or less, comprising portions of sixteen sections within Township 24 South, Range 29 East, NMPM, Eddy County, New Mexico (the “Project Area”), as follows:

Township 24 South, Range 29 East

- Section 3: All
- Section 6: W/2
- Section 7: W/2 and SE/4
- Section 8: W/2
- Section 10: All
- Section 15: All

¹ Oxy USA Inc. operates 17 of the proposed CLGC wells and Occidental Permian, LTD operates 1 of the proposed CLGC wells.

- Section 16: S/2
- Section 17: NW/4 and S/2
- Section 20: All
- Section 21: All
- Section 22: All
- Section 23: All
- Section 24: N/2 NW/4
- Section 27: N/2 and N/2 of S/2
- Section 28: All
- Section 29: All

2. The proposed Project Area is part of a larger area known as the Cedar Canyon area.

3. OXY requests approval for this Pilot Project to avoid the shut-in of producing wells and reduce flaring (and associated emissions) during temporary natural gas transmission system capacity reductions, such as mechanical or electrical compression outages, plant shutdowns, or other issues that temporarily prevent the delivery of natural gas into a pipeline.

4. OXY seeks authority to use the following eighteen horizontal wells within the Project Area to occasionally inject produced gas into the Second Bone Spring interval within the Bone Spring formation:

- a. The **Morgan Fee Com #1H** (API No. 30-015-39968) with surface hole location 1,035 feet FSL and 455 feet FWL (Unit M) in Section 21, Township 24 South, Range 29 East, and a bottom hole location 651 feet FSL and 349 feet FEL (Unit P) in Section 21, Township 24 South, Range 29 East, NMPM, Eddy, New Mexico.
- b. The **Cedar Canyon 23 #2H** (API No. 30-015-41194) with surface hole location 650 feet FSL and 660 feet FWL (Unit M) in Section 23, Township 24 South, Range 29 East, and a bottom hole location 725 feet FSL and 160 feet FEL (Unit P) in Section 23, Township 24 South, Range 29 East, NMPM, Eddy, New Mexico.

- c. The **Cedar Canyon 29 Federal Com #3H** (API No. 30-015-42993) with surface hole location 1,990 feet FNL and 210 feet FEL (Unit H) in Section 29, Township 24 South, Range 29 East, and a bottom hole location 2,205 feet FNL and 170 feet FWL (Unit E) in Section 29, Township 24 South, Range 29 East, NMPM, Eddy, New Mexico.
- d. The **Cedar Canyon 27 Federal #6H** (API No. 30-015-43232) with surface hole location 1,850 feet FSL and 240 feet FEL (Unit I) in Section 28, Township 24 South, Range 29 East, and a bottom hole location 1,755 feet FSL and 250 feet FEL (Unit I) in Section 27, Township 24 South, Range 29 East, NMPM, Eddy, New Mexico.
- e. The **Cedar Canyon 28 Federal #6H** (API No. 30-015-43234) with surface hole location 1,820 feet FSL and 240 feet FEL (Unit I) in Section 28, Township 24 South, Range 29 East, and a bottom hole location 1,692 feet FSL and 229 feet FWL (Unit L) in Section 28, Township 24 South, Range 29 East, NMPM, Eddy, New Mexico.
- f. The **Cedar Canyon 28 Federal #7H** (API No. 30-015-43238) with surface hole location 1,760 feet FSL and 240 feet FEL (Unit I) in Section 28, Township 24 South, Range 29 East, and a bottom hole location 874 feet FSL and 208 feet FWL (Unit M) in Section 28, Township 24 South, Range 29 East, NMPM, Eddy, New Mexico.
- g. The **Cedar Canyon 23 Federal #5H** (API No. 30-015-43282) with surface hole location 1,317 feet FNL and 195 feet FEL (Unit A) in Section 22, Township 24 South, Range 29 East, and a bottom hole location 471 feet FNL and 2,406 feet

FWL (Unit C) in Section 24, Township 24 South, Range 29 East, NMPM, Eddy, New Mexico.

- h. The **Cedar Canyon 22 Federal Com #4H** (API No. 30-015-43708) with surface hole location 2,540 feet FSL and 260 feet FEL (Unit I) in Section 22, Township 24 South, Range 29 East, and a bottom hole location 2,567 feet FSL and 160 feet FWL (Unit L) in Section 22, Township 24 South, Range 29 East, NMPM, Eddy, New Mexico.
- i. The **Cedar Canyon 21 Federal Com #5H** (API No. 30-015-43749) with surface hole location 1,090 feet FSL and 207 feet FWL (Unit M) in Section 22, Township 24 South, Range 29 East, and a bottom hole location 1,957 feet FSL and 146 feet FWL (Unit L) in Section 21, Township 24 South, Range 29 East, NMPM, Eddy, New Mexico.
- j. The **Cedar Canyon 27 Federal Com #5H** (API No. 30-015-43775) with surface hole location 1,154 feet FNL and 151 feet FWL (Unit D) in Section 27, Township 24 South, Range 29 East, and a bottom hole location 1,717 feet FNL and 184 feet FEL (Unit H) in Section 27, Township 24 South, Range 29 East, NMPM, Eddy, New Mexico.
- k. The **Cedar Canyon 21 Federal Com #21H** (API No. 30-015-44181) with surface hole location 369 feet FNL and 368 feet FEL (Unit A) in Section 21, Township 24 South, Range 29 East, and a bottom hole location 475 feet FNL and 188 feet FWL (Unit D) in Section 21, Township 24 South, Range 29 East, NMPM, Eddy, New Mexico.

- l. The **Cedar Canyon 21 Federal Com #22H** (API No. 30-015-44190) with surface hole location 1,764 feet FNL and 141 feet FWL (Unit E) in Section 21, Township 24 South, Range 29 East, and a bottom hole location 1,365 feet FNL and 177 feet FEL (Unit H) in Section 21, Township 24 South, Range 29 East, NMPM, Eddy, New Mexico.
- m. The **Cedar Canyon 29 Federal Com #25H** (API No. 30-015-44522) with surface hole location 1,640 feet FSL and 420 feet FWL (Unit L) in Section 29, Township 24 South, Range 29 East, and a bottom hole location 1,382 feet FSL and 199 feet FEL (Unit I) in Section 29, Township 24 South, Range 29 East, NMPM, Eddy, New Mexico.
- n. The **Cedar Canyon 29 Federal #26H** (API No. 30-015-44523) with surface hole location 1,610 feet FSL and 420 feet FWL (Unit L) in Section 29, Township 24 South, Range 29 East, and a bottom hole location 419 feet FSL and 183 feet FEL (Unit P) in Section 29, Township 24 South, Range 29 East, NMPM, Eddy, New Mexico.
- o. The **Salt Ridge CC 20 17 Federal Com #21H** (API No. 30-015-44945) with surface hole location 2,359 feet FNL and 1,302 feet FWL (Unit E) in Section 17, Township 24 South, Range 29 East, and a bottom hole location 10 feet FSL and 408 feet FWL (Unit M) in Section 20, Township 24 South, Range 29 East, NMPM, Eddy, New Mexico.
- p. The **Length CC 6 7 Federal Com #23H** (API No. 30-015-45551) with surface hole location 230 feet FNL and 2,320 feet FWL (Lot 3) in irregular Section 6, Township 24 South, Range 29 East, and a bottom hole location 17 feet FSL and

2,213 feet FWL (Unit N) in Section 7, Township 24 South, Range 29 East, NMPM, Eddy, New Mexico.

- q. The **Tails CC 10 3 Federal Com #22H** (API No. 30-015-47957) with surface hole location 220 feet FSL and 1,450 feet FWL (Unit N) in Section 10, Township 24 South, Range 29 East, and a bottom hole location 100 feet FNL and 1,645 feet FWL (Lot 3) in irregular Section 3, Township 24 South, Range 29 East, NMPM, Eddy, New Mexico.
- r. The **Vagabond CC 8 17 Federal Com #23H** (API No. 30-015-47975) with surface hole location 546 feet FSL and 1,740 feet FWL (Unit N) in Section 17, Township 24 South, Range 29 East, and a bottom hole location 57 feet FNL and 2,159 feet FWL (Unit C) in Section 8, Township 24 South, Range 29 East, NMPM, Eddy, New Mexico.

5. The proposed average daily injection rate is 3 MMSCF/day with an expected maximum injection rate of 5 MMSCF/day during injection. See **Exhibit A** at page 64.

6. The maximum allowable surface pressure (MASP) for the Pilot Project is 1,335 psi. *Id.* The current surface pressures under normal operating conditions for the wells is in the range of 492 to 837 pounds per square inch (psi). *Id.*

7. Injection along the horizontal portion of the proposed wellbores will be within the Bone Spring formation through the existing perforations and at the following approximate true vertical depths:

- a. The **Morgan Fee Com #1H** between 9,147 feet and 9,265 feet, within the Corral Draw, Bone Spring [Pool Code 96238];

- b. The **Cedar Canyon 23 #2H** between 8,836 feet and 8,900 feet, within the Pierce Crossing, Bone Spring [Pool Code 50371];
- c. The **Cedar Canyon 29 Federal Com #3H** between 8,479 feet and 8,563 feet, within the Pierce Crossing, Bone Spring [Pool Code 50371];
- d. The **Cedar Canyon 27 Federal #6H** between 8,735 feet and 8,757 feet, within the Pierce Crossing, Bone Spring, East [Pool Code 96473];
- e. The **Cedar Canyon 28 Federal #6H** between 8,660 feet and 8,614 feet, within the Pierce Crossing, Bone Spring, East [Pool Code 96473];
- f. The **Cedar Canyon 28 Federal #7H** between 8,688 feet and 8,608 feet, within the Pierce Crossing, Bone Spring, East [Pool Code 96473];
- g. The **Cedar Canyon 23 Federal #5H** between 8,844 feet and 9,010 feet, within the Pierce Crossing, Bone Spring, East [Pool Code 96473];
- h. The **Cedar Canyon 22 Federal Com #4H** between 8,748 feet and 8,734 feet, within the Pierce Crossing, Bone Spring, East [Pool Code 96473];
- i. The **Cedar Canyon 21 Federal Com #5H** between 8,695 feet and 8,632 feet, within the Corral Draw, Bone Spring [Pool Code 96238];
- j. The **Cedar Canyon 27 Federal Com #5H** between 8,727 feet and 8,816 feet, within the Pierce Crossing, Bone Spring, East [Pool Code 96473];
- k. The **Cedar Canyon 21 Federal Com #21H** between 8,635 feet and 8,554 feet, within the Corral Draw, Bone Spring [Pool Code 96238];
- l. The **Cedar Canyon 21 Federal Com #22H** between 8,506 feet and 8,705 feet, within the Corral Draw, Bone Spring [Pool Code 96238];

- m. The **Cedar Canyon 29 Federal Com #25H** between 8,458 feet and 8,611 feet, within the Pierce Crossing, Bone Spring [Pool Code 50371];
- n. The **Cedar Canyon 29 Federal #26H** between 8,401 feet and 8,625 feet, within the Pierce Crossing, Bone Spring [Pool Code 50371];
- o. The **Salt Ridge CC 20 17 Federal Com #21H** between 8,312 feet and 8,535 feet, within the Pierce Crossing, Bone Spring [Pool Code 50371];
- p. The **Length CC 6 7 Federal Com #23H** between 8,249 feet and 8,302 feet, within the Pierce Crossing, Bone Spring [Pool Code 50371];
- q. The **Tails CC 10 3 Federal Com #22H** between 8,679 feet and 8,752 feet, within the Pierce Crossing, Bone Spring, East [Pool Code 96473] and Cedar Canyon Bone Spring [Pool Code 11520]; and
- r. The **Vagabond CC 8 17 Federal Com #23H** between 8,599 feet and 8,545 feet, within the Pierce Crossing, Bone Spring, East [Pool Code 96473], Cedar Canyon Bone Spring [Pool Code 11520], and Pierce Crossing, Bone Spring [Pool Code 50371].

See **Exhibit A** at pages 28-63.

- 8. A map showing the pipeline with ties to the CLGC wells, area gathering system, affected compression stations, and wells, is shown in **Exhibit A** at pages 6-7.

WELL DATA

- 9. Information on the as-drilled wells, including wellbore diagrams, identification and location information, casing and cementing details, tubing details, packers, perforation depths, and formations tops, are shown in tabular format (See **Exhibit A** at page 87) and in diagram format (See **Exhibit A** at pages 28-63).

10. The proposed MASP, assuming a full column of reservoir brine water, will not exert a pressure at the top perforation more than 90% of the production casing or liner's burst pressure. For two of the eighteen wells, the casing or liner burst pressure has a lower psi, but calculations show that the proposed MASP, assuming a full column of reservoir brine water, will still not exert a pressure at the top perforation more than 90% of the production casing or liner's burst pressure. See **Exhibit A** at page 64.

11. Cement bond logs for each of the proposed CLGC wells has been electronically submitted to the Division's well file. These logs demonstrate that the placement of cement and cement bond of the production casing and the tie-in of the production casing with the next prior casing are sufficient.

12. Mechanical Integrity Tests (MITs) were completed on thirteen of the proposed CLGC wells within the last twelve months, following the Division CLGC guidance. The results of the tests, including charts depicting the surface pressure, are shown in **Exhibit A** at page 67. The tested pressures equal or exceed 110% of the proposed MASP. The remaining proposed CLGC wells will be tested, following the Division CLGC guidance, prior to injection.

GEOLOGY AND RESERVOIR

1. Data, maps, and geologic analyses confirming that the Bone Spring formation, including the targeted injection interval, is suitable for the proposed CLGC project are included in **Exhibit A** at pages 105-109. A general characterization of the geology of the Bone Spring formation and its suitability for the proposed injection, including identification of confining layers and their ability to prevent vertical movement of the injected gas is included in the analysis. *Id.*

2. The top of the Bone Spring formation in this area is at approximately 6,950 feet total vertical depth and extends down to the top of the Wolfcamp formation. *See Exhibit A* at page 105.

3. Zones that are productive of oil and gas are located above and below the targeted injection interval. *See Exhibit A* at pages 105, 107.

4. Reservoir modeling indicates anticipated horizontal movement of injected gas will be approximately 100 feet or less from each injection wellbore within the Bone Spring formation. *See Exhibit A* at pages 118, 120.

5. OXY has prepared calculations estimating the stimulated reservoir volume based on supporting empirical data and a reservoir model to evaluate potential effects on wells adjacent to the Project Area. *See Exhibit A* at pages 112-122. OXY's analysis concludes that there will be no change in the oil recovery from each of its proposed injection wells or from any of the offsetting wells. *See id.* at page 122.

6. The source of gas for injection will be from OXY's wells producing from the Delaware Mountain Group (DMG), Bone Spring, and Wolfcamp formations that are identified in the list of wells in **Exhibit A** at pages 68-74. All proposed temporary injection wells and gas source wells are commingled under approved gas surface commingling permits. *See id.* (master commingling order PLC-750-G). Additional source wells may be added over time under an approved surface commingling authorization. Each of OXY's proposed injection wells are operated by OXY.

7. OXY has prepared an analysis of the composition of the source gas for injection and a corrosion prevention plan. *See Exhibit A* at pages 76-80.

13. OXY has examined the available geologic and engineering data and found no evidence of open faults or other hydrologic connections between the injection zone and any underground source of drinking water. *See Exhibit A* at pages 106, 111. OXY has also examined the available geologic and engineering data and determined that the total recoverable volume of hydrocarbons from the reservoir will not be adversely affected by the Pilot Project. *See Exhibit A* at page 123.

GAS ALLOCATION

14. OXY proposes to pay royalties and revenues on both the pre-injection event stored gas (i.e., produced gas being injected) and the post-injection event stored and native gas (i.e., the combined injected gas being recovered and native gas being produced).

AREA OF REVIEW

15. OXY has prepared maps depicting the surface hole location and trajectory of the proposed injection wells, the location of every well within a two-mile radius, leases within two miles, and the half-mile area of review. *See Exhibit A* at pages 5, 84-86.

16. A tabulation of data for wells that penetrate the proposed injection interval or the confining layer within the half-mile area of review is included in **Exhibit A** at pages 87-94, along with well-bore schematics for wells that are plugged and abandoned or temporarily abandoned. *See Exhibit A* at pages 95-103.

OPERATIONS AND SAFETY

17. OXY plans to monitor injection and operational parameters for the Pilot Project using an automated supervisory control and data acquisition (SCADA) system with pre-set alarms and automatic shut-in safety valves that will prevent injection pressures from exceeding the

MASP. See **Exhibit A** at pages 82-83. OXY will also monitor and track various operational parameters at the Pilot Project's central tank battery and central gas lift compressors. See *id.*

18. A copy of this application will be provided by certified mail to the surface owner on which each injection well identified herein is located, and to each leasehold operator and other affected persons within any tract wholly or partially contained within one-half mile of the completed interval of the wellbore for each of the proposed injection wells. A list of the affected parties subject to notice is included in **Exhibit A** at pages 124-125, along with a map and list identifying each tract subject to notice. See **Exhibit A** at 126.

19. Approval of this application is in the best interests of conservation, the prevention of waste, and the protection of correlative rights.

WHEREFORE, OXY USA Inc. and Occidental Permian LTD. requests that this Application be set for hearing before an Examiner of the Oil Conservation Division on December 5, 2024 and that after notice and hearing this Application be approved.

Respectfully submitted,

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**ATTORNEYS FOR OXY USA INC. AND
OCCIDENTAL PERMIAN LTD.**

CASE _____ :

Application of OXY USA Inc. and Occidental Permian LTD. for a Closed Loop Gas Capture Injection Pilot Project, Eddy County, New Mexico. Applicant in the seeks an order authorizing it to engage in a closed loop gas capture injection pilot project in the Bone Spring formation within a 8,240-acre, more or less, project area consisting of the following acreage identified below in Eddy County, New Mexico:

Township 24 South, Range 29 East

Section 3: All
 Section 6: W/2
 Section 7: W/2 and SW/4
 Section 8: W/2
 Section 10: All
 Section 15: All
 Section 16: S/2
 Section 17: NW/4 and S/2
 Section 20: All
 Section 21: All
 Section 22: All
 Section 23: All
 Section 24: N/2 NW/4
 Section 27: N/2 and N/2 S/2
 Section 28: All
 Section 29: All

Applicant proposes to occasionally inject produced gas from the Delaware Mountain Group, Bone Spring and Wolfcamp formations into the following producing wells to avoid temporary flaring of gas or the shut-in of producing wells during pipeline capacity constraints, mechanical difficulties, plant shutdowns, or other events impacting the ability to deliver gas into a pipeline:

- **Morgan Fee Com #1H** (API No. 30-015-39968);
- **Cedar Canyon 23 #2H** (API No. 30-015-41194);
- **Cedar Canyon 29 Federal Com #3H** (API No. 30-015-42993);
- **Cedar Canyon 27 Federal #6H** (API No. 30-015-43232);
- **Cedar Canyon 28 Federal #6H** (API No. 30-015-43234);
- **Cedar Canyon 28 Federal #7H** (API No. 30-015-43238);
- **Cedar Canyon 23 Federal #5H** (API No. 30-015-43282);
- **Cedar Canyon 22 Federal Com #4H** (API No. 30-015-43708);
- **Cedar Canyon 21 Federal Com #5H** (API No. 30-015-43749);
- **Cedar Canyon 27 Federal Com #5H** (API No. 30-015-43775);
- **Cedar Canyon 21 Federal Com #21H** (API No. 30-015-44181);
- **Cedar Canyon 21 Federal Com #22H** (API No. 30-015-44190);
- **Cedar Canyon 29 Federal Com #25H** (API No. 30-015-44522);

- **Cedar Canyon 29 Federal #26H** (API No. 30-015-44523);
- **Salt Ridge CC 20 17 Federal Com #21H** (API No. 30-015-44945);
- **Length CC 6 7 Federal Com #23H** (API No. 30-015-45551);
- **Tails CC 10 3 Federal Com #22H** (API No. 30-015-47957); and
- **Vagabond CC 8 17 Federal Com #23H** (API No. 30-015-47975).

Applicant seeks authority to inject produced gas into the Second Bone Spring interval of the Bone Spring formation along the horizontal portion of each wellbore at surface injection pressures of no more than 1,335 psi and a maximum injection rate of 5 MMSCF/day. The subject acreage is located approximately 8 miles southeast of Loving, New Mexico.