

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

**IN THE MATTER OF THE HEARING CALLED BY
THE OIL CONSERVATION DIVISION FOR THE
PURPOSE OF CONSIDERING:**

**APPLICATION OF OXY USA INC. FOR
AUTHORIZATION TO INJECTION AND
CREATION OF AN ENHANCED OIL RECOVERY
PILOT PROJECT, EDDY COUNTY, NEW MEXICO.**

**CASE NO. 25054
ORDER NO. R-24489**

ORDER OF THE DIVISION

This case came in for hearing before the Oil Conservation Division (“OCD”) at 9:00 a.m. on January 9, 2025, and subsequently on March 13, 2025, in Santa Fe, New Mexico.

The OCD Director, having considered the testimony, the record, the recommendations of Hearing Examiner, these findings of fact, and conclusions of law, issues this Order.

FINDINGS

1. Due public notice has been given and the Division has jurisdiction of this case and its subject matter.
2. OXY USA Inc. (“OXY” or “Applicant”) filed the application for authorization to inject produced hydrocarbon gas for purposes of an enhanced oil recovery (“EOR”) pilot project to assess the potential for recovery using an Intra-well Miscibility (“IWM”) process. The pilot project (“Project”) is proposed for a single horizontal well completed in the Second Bone Spring sand within the Bone Spring formation.
3. The Project proposes the use of produced gas for EOR through focused injection to sweep the pore space between perforation clusters in the depleted reservoir around a single horizontal wellbore.
4. The Project Area proposed for the EOR pilot project comprises 960 acres, more or less, of federal lands in Eddy County, New Mexico:

Township 24 South, Range 31 East, NMPM

Section 17: W/2

Section 18: E/2W2 and E/2

5. OXY has proposed the following wells which will be characterized to select a final candidate for the commencement of the Project (“Candidate Wells”):

Well	API Number	Well Name	Perforations*
1	30-015-44272	Patton MDP1 18 Federal No. 5H	9,950 to 9,995
2	30-015-44273	Patton MDP1 18 Federal No. 7H	10,020 to 10,040
3	30-015-44333	Patton MDP1 18 Federal No. 3H	9,900 to 9,997
4	30-015-44459	Patton MDP1 17 Federal No. 1H	9,982 to 9,983
5	30-015-44460	Patton MDP1 17 Federal No. 2H	9,987 to 9,994
6	30-015-44496	Patton MDP1 17 Federal No. 3H	10,055 to 10,100

*Perforations are approximate true vertical depth in feet

6. Applicant filed the case on December 10, 2024, and OCD assigned the case for hearing on the Division Docket dated January 9, 2025.

7. No other party appeared at hearing or opposed the application being presented by affidavit.

8. In support of the application, OXY presented exhibits by affidavit and witnesses that provided the following testimony:

a. Applicant provided details on the IWM technique which will use produced gas to sweep the pore space of remaining hydrocarbons found in the reservoir rock between clusters of perforations and the fracture system associated with the perforation cluster.

b. Injection of the produced gas would occur within an existing horizontal production well completed in the Injection Interval in the proposed Project Area. The single horizontal well would serve as both the injection well and production well.

c. The “Injection Interval” for the Project is identified as the Second Bone Spring sand within the Bone Spring formation at an approximate true vertical depth between 9,990 feet and 10,100 feet. All the Candidate Wells for the Project are dedicated to the Cotton Draw; Bone Spring pool (pool code 13367).

d. Due to the IWM technique OXY requested approval to simultaneously inject produced gas while producing oil and gas.

e. The primary well candidate for the Project is the Patton MDP1 18 Federal Well No. 5H (API No. 30-015-44272) with the remaining five proposed wells being alternatives should further testing of the primary candidate reveal either integrity issues or indications that the location of the well within the Injection Interval is not optimal for EOR.

f. OXY seeks authority to inject produced gas at a maximum allowable surface pressure of 4,590 pounds per square inch (“psi”) with a proposed average injection rate between 1.5 million standard cubic feet per day (“MMSCFD”) and three (3) MMSCFD of produced gas.

g. OXY proposed the following activities for operation of the injection well to ensure mechanical integrity during the Project:

- i. conduct annual inspection and assessment of mechanical integrity using “Thru-tubing” magnetic impedance logging or, if necessary, pull the production equipment and conduct caliper inspection logs;
- ii. conduct a mechanical integrity test (“MIT”) of the wellbore before commencing operations then conduct another MIT following 48 months (four years) of injection operation;
- iii. utilize injection gas that is processed with a dehydration unit to prevent corrosion of the well casing as the IWM procedure will require injection through tubing with production returning in the annulus of the tubing and casing; and
- iv. incorporate a Supervisory Control and Data Acquisition (“SCADA”) system with increased monitoring of well parameters and includes modified wellhead equipment with greater safety devices.

h. Source of the injection gas will be from the Operator’s Sand Dunes Corridor Central Tank Battery (“CTB”). The source gas is composed of produced gas from Delaware, Bone Spring and Wolfcamp pools that are approved for commingling under OCD administrative order PLC-898 (as amended).

i. Applicant provided analysis of the proposed injection gas which showed compatibility with the injection interval and did not contain any detectable concentration of hydrogen sulfide.

j. Applicant testified that all of the Candidate Wells are located on federal leases and that OXY has 100 percent of the working interest for each lease.

k. Applicant addressed accounting problems by stating the source gas is free of royalty obligations, the injection gas volumes will be deducted from the production gas volumes prior to calculating royalty payment, and the Bureau of Land Management has provided verbal approval of the accounting procedures for the Project.

l. Applicant identified the upper confining zone for the Project as the remaining section of the Bone Spring formation along with the interval of the Delaware Mountain group which overlies the Bone Spring formation. The lower confining zone was identified as the Third Bone Spring lime. Applicant also stated that lateral confinement of the injection gas will be

within the reservoir volume based on the tight low permeability of the reservoir and the depleted state as a result of the prior production.

m. Applicant identified a total 67 wells which penetrate the Unitized Interval within the one-half mile area of review (“AOR”) for the six Candidate Wells. Seven of this total count were plugged and abandoned wells while the remaining wells are active oil and gas production wells. OXY presented evidence that all adjacent penetrating wells within the one-half mile AOR were properly cased and cemented to prevent vertical migration of injected gas.

n. Applicant stated that the deepest underground source of drinking water (“USDW”) in the Project Area was determined to be the Rustler formation. No other USDW was identified in the application.

o. OXY identified only one groundwater well within a two-mile radius of the Project. The well is designated a monitoring well. There were no groundwater wells that supply domestic or livestock sources in the same two-mile radius that was reviewed.

p. Applicant disclosed that four of the six Candidate Wells listed in Findings Paragraph (5) [the Patton MDP1 18 Federal No. 5H, Patton MDP1 18 Federal No. 7H, Patton MDP1 18 Federal No. 3H and Patton MDP1 17 Federal No. 1H] are currently approved for injection as Closed-Loop Gas Capture (“CLGC”) storage wells under Order No. R-22208 (Case No. 22152). Applicant proposes removal of the selected injection well, if currently a CLGC storage well, from Order No. R-22208 by amending the order.

9. On cross examination, OCD Technical Examiners made multiple inquiries such as the reservoir impacts with the changing plume conditions, the use of packers and their configuration during the IWM activities, the construction of the wellhead to accommodate active sensors that are position in the well, the pressure ratings for the wellhead components, and the methodology to determine the economic benefit of the IWM procedure. To address the Examiner’s question, OXY provided a second supplemental exhibit including a revised Exhibit F which is the affidavit of publication. The notice of hearing in a newspaper required to be reissued due to an error in content and the affidavit for the corrected notice was submitted for record at the Division hearing on March 13, 2025.

CONCLUSIONS OF LAW

1. Applicant provided the information required by 19.15.26 NMAC and the Form C-108 for an application to inject produced gas and water for operation of an EOR project.

2. Based upon the information provided in the application and at hearing, the operation of the proposed EOR project will increase the ultimate recovery.

3. The proposed EOR project will, in reasonable probability, result in production of substantially more hydrocarbons from the Project Area that would otherwise not be recovered without the implementation of the proposed project.
4. Applicant complied with the notice requirements of 19.15.4 NMAC.
5. Applicant provided evidence that the existing wells within the AOR are sufficiently cased and cemented such that the operation of the proposed EOR project will not impact fresh water or USDW.
6. Applicant affirmed in a sworn statement by a qualified person that it examined the available geologic and engineering data and found no evidence of open faults or other hydrologic connections between the approved injection interval and any USDW.
7. Applicant is in compliance with 19.15.5.9 NMAC.
8. Approval of this application is in the best interests of conservation, the prevention of waste and the protection of correlative rights. Accordingly, the application should be approved.

ORDER

1. The application of OXY USA, Inc. ("OXY" or "Operator") to authorize injection of produced gas for an enhanced oil recovery ("EOR") pilot project using an Intra-well Miscibility ("IWM") process **is hereby approved**. The operation is designated the **IWM Enhanced Recovery Pilot Project** ("Project").

2. The Project Area comprises 960 acres, more or less, of federal lands in Eddy County, New Mexico:

Township 24 South, Range 31 East, NMPM

Section 17: W/2

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3. For the purposes of the Project and the duration of the IWM operation, the "Unitized Interval" shall be the Bone Spring formation as defined by Cotton Draw; Bone Spring pool (pool code 13367) with the EOR activities for the Project to occur within the Second Bone Spring sand.

4. This Order approving the Project shall be effective for a period of five (5) years. The period for injection authority shall begin on the date that the first injection commences in the selected well for EOR activity. An extension of the Project beyond the five-year period may be approved administratively if the Operator submits a written request for good cause prior to the end of the five-year period.

5. OXY is authorized to select a single well ("IWM Well") from the wells previously listed in Findings Paragraph (5) for the Project and contained in the following table.

Well	API Number	Well Name
1	30-015-44272	Patton MDP1 18 Federal No. 5H
2	30-015-44273	Patton MDP1 18 Federal No. 7H
3	30-015-44333	Patton MDP1 18 Federal No. 3H
4	30-015-44459	Patton MDP1 17 Federal No. 1H
5	30-015-44460	Patton MDP1 17 Federal No. 2H
6	30-015-44496	Patton MDP1 17 Federal No. 3H

OXY is additionally authorized to select a substitute well from the list should testing results for the first selected well prove unsatisfactory.

6. With the approval of this Order and once the Applicant has selected the IWM Well, the injection authority approved by Division Order No. R-22208 and the use of the selected well as a CLGC storage well (if applicable) is suspended for the duration of the Project. The Operator shall provide written notice, using Form C-103Z, the date on which injection commenced for the IWM Well. The sundry shall include details on how the IWM well is isolated from the CLGC system. The submittal of the form shall be no later than three (3) business days following commencement of the injection activity.

7. Following the conclusion of the Project (including the submittal of the project summary with results), the Operator may submit a Form C-108 to the Director to administratively add the former IWM Well to the CLGC system approved in Order No. R-22208.

8. OXY USA, Inc. (OGRID No. 16696) shall be the designated operator of the Project.

9. OXY is authorized to inject produced gas within the Unitized Interval through tubing and packer. The packer system for the IWM Well shall be set at the depths detailed in the appropriate *Injection Well Data Sheet* for the selected well as provided in Applicants second submittal from the Division hearing on March 13, 2025.

10. If issues with the retrievable packer system occur in the IWM Well, the Operator shall implement the appropriate Contingency Plan (with prior written approval of the OCD) described in the Self-Affirmed Statement of Eduardo Seoane found in Applicants second submittal provided at the Division hearing on March 13, 2025.

11. The injection well shall be equipped with a pressure control device or acceptable substitute that will limit the maximum surface injection pressure to 4,590 psi with an average injection rate between 1.5 MMSCFD and three (3) MMSCFD of produced gas

12. The use of the produced gas from the Sand Dunes Corridor CTB that is treated to reduce corrosion is approved.

13. The Operator shall take all steps necessary to ensure that the injected fluid enters only the injection interval and is not permitted to escape to other formations or onto the surface from injection, production, or plugged and abandoned wells.

14. To satisfy the Mechanical Integrity Testing ("MIT") requirements of 19.15.26.11(A) NMAC, OXY shall comply as follows:

a. Prior to commencing injection operations, OXY shall submit a Form C-103X General Sundry detailing the MIT procedure(s) that will be utilized for performing MITs with gas lift valves installed in the tubing. The procedure shall include the MIT methodology, detailed procedural steps and contingencies (if applicable) to perform MITs in the Wells where gas lift valves are installed.

b. After receiving OCD approval for the aforementioned MIT procedure(s), an initial MIT shall be required prior to commencing injection operations in the IWM Well with subsequent testing at least once within four (4) years.

c. Following the initial injection/production cycle (and the production casing-tubing annulus containing only gas), OXY shall conduct active bradenhead monitoring for the IWM Well that measures the pressure in the annular spaces for the production casing-intermediate casing annular space and the intermediate casing to surface casing annular space.

d. An acceptable MIT shall be required prior to resumption of injection each time either the packer is unseated or tubing is removed from the IWM Well. The Director retains the right to require, at any time, wireline verification of completion and packer setting depths.

e. Besides the MIT procedure, the Operator shall complete the additional testing proposed in Finding Paragraph (8)(g)(i) and the use of the SCADA system to monitor the IWM Well operation.

15. The Project shall be governed by Rules 19.15.26.8 through 19.15.26.15 NMAC except where modified by this Order. The Operator shall submit monthly reports of the injection operations on Form C-115 in accordance with Rules 19.15.26.13 and 19.15.7.24 NMAC. The monthly reports shall include the volume of injected fluid, the days of operation, and the maximum injection pressure recorded during the month of operation.

16. Due to costs and timing associated with implementing the Project, OXY shall be granted an exception from 19.15.26.12(C) NMAC and OXY shall be authorized to initiate the first injection into any of the approved wells within two (2) years of approval of this Order. Additionally, OXY may seek an extension of time of this Order by filing a written request showing good cause prior to the deadline to commence injection within the Project.

17. If hydrogen sulfide ("H₂S") is observed in the IWM Well or adjacent horizontal wells within the Unitized Interval, OXY shall submit a H₂S contingency plan as required in 19.15.11 NMAC for approval by the OCD.
18. Operator shall provide written notice to the OCD of the termination of the Project approved in this Order.
19. With the termination of the Project, Operator shall submit a written report to the OCD summarizing the performance of the Project, the economic benefit of the IWM process, any evidence of interference of the CLGC operation and the potential for future use of the IWM process on multiple wells.
20. For future plugging of the IWM Well, Operator shall implement the procedure in the Self-Affirmed Statement of Eduardo Seoane (found in Applicants second submittal provided at the Division hearing on March 13, 2025) to address any swellable packers remaining in the well.
21. Compliance with this Order does not relieve the Operator of the obligation to comply with other applicable federal, state or local laws or rules, or to exercise due care for the protection of fresh water, public health and safety and the environment.
22. Jurisdiction is retained by the OCD for the entry of such further orders as may be necessary for the prevention of waste and/or protection of correlative rights or upon failure of the operator to conduct operations (1) to protect fresh or protectable waters or (2) consistent with the requirements in this order; whereupon the OCD may, after notice and hearing or prior to notice and hearing in event of an emergency, terminate the injection authority granted herein.

**STATE OF NEW MEXICO
OIL CONSERVATION DIVISION**



**ALBERT C.S. CHANG
DIVISION DIRECTOR**

Date: 08/21/2026

AC/prg