

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

**APPLICATION OF OXY U.S.A. INC. FOR
AUTHORIZATION TO INJECT AND
CREATION OF AN ENHANCED OIL
RECOVERY PILOT PROJECT,
EDDY COUNTY, NEW MEXICO.**

CASE NO. 25054

NOTICE OF SUPPLEMENTAL EXHIBITS

OXY USA INC. applicant in the above-referenced case, gives notice that it is filing the attached supplemental hearing exhibit packet into the record. At the hearing in this case on January 9, 2025, the Division Technical Examiners asked OXY to provide supplemental exhibits addressing Division questions on the proposed Pilot Project. The case was continued to a special docket on February 4, 2025 in order to allow the Division Technical Examiners to review the supplemental exhibits and ask OXY's witnesses any follow-up questions. Accordingly, OXY files the following supplemental exhibits and requests that they be accepted into the record in this case:

Supplemental Exhibit C: Supplemental Self-Affirmed Statement of Eduardo Seoane, Completions Engineer;

Supplemental Exhibit D: Supplemental Self-Affirmed Statement of Xueying Xie, Reservoir Engineer.

Supplemental Exhibit D-1: Reservoir Simulation.

Respectfully submitted,

HOLLAND & HART LLP

By:  _____

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ATTORNEYS FOR OXY USA INC.

**BEFORE THE OIL CONSERVATION DIVISION
EXAMINER HEARING JANUARY 9, 2025**

CASE NO. 25054

IWM PILOT

EDDY COUNTY, NEW MEXICO



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

**APPLICATION OF OXY U.S.A. INC. FOR
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CASE NO. 25054

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

**APPLICATION OF OXY U.S.A. INC. FOR
AUTHORIZATION TO INJECT AND
CREATION OF AN ENHANCED OIL
RECOVERY PILOT PROJECT,
EDDY COUNTY, NEW MEXICO.**

CASE NO. 25054

APPLICATION

OXY USA Inc. (OGRID No. 16696) through its undersigned attorneys, hereby files this application with the New Mexico Oil Conservation Division for an order authorizing OXY to inject for purposes of an enhanced oil recovery (“EOR”) pilot project in the Second Bone Spring Sand interval within the Bone Spring formation (“Pilot Project”) in Eddy County, New Mexico.

In support of this application, OXY states:

PROJECT SUMMARY

1. OXY proposes to initiate an Intra-Well Miscibility (“IWM”) EOR injection pilot project within a single existing horizontal well completed in the Second Bone Spring Sand interval within the Bone Spring formation, dedicated to a proposed project area comprised of approximately 960-acres, more or less, in Eddy County, New Mexico (the “Project Area”), as follows:

NMPM: Township 24 South, Range 31 East

Section 17: W/2
Section 18: E/2 W/2; E/2

2. Intra-well Miscibility (“IWM”) is an Enhanced Oil Recovery (“EOR”) technique that uses miscible gas, produced hydrocarbon gas in this project, as an injectant to sweep the pore space of the depleted reservoir around a single horizontal wellbore that simultaneously serves as

**BEFORE THE OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Exhibit No. A
Submitted by: OXY USA INC.
Hearing Date: January 9, 2025
Case No. 25054**

both the injection and production well. In this Pilot Project, injection and production are proposed to be conducted at the same time from a single well selected from among the six candidate wells within the Project Area.

3. While OXY anticipates that injection of produced gas into the selected IWM injection well will enhance hydrocarbon recovery from the same well, this is a new EOR technique. Accordingly, OXY seeks approval of this injection as a Pilot Project.

4. The interval that will benefit from the proposed EOR injection constitutes the Second Bone Spring Sand interval within the Bone Spring formation being the stratigraphic equivalent of approximately 9,819 true vertical feet (9,824 feet measured depth) to approximately 10,303 true vertical feet (10,308 feet measured depth) at the top of the Third Bone Spring Lime, as identified in the **Patton MDP1 "18" Federal 6H** (API No. 30-015-43854).

5. An overview of the proposed IWM EOR Pilot Project is attached and incorporated as **Exhibit A**. It contains all the information necessary to authorize injection for purposes of EOR, including a Form C-108.

6. OXY requests authority to initiate this proposed Pilot Project to evaluate the feasibility of IWM EOR. Benefits of IWM EOR that OXY anticipates confirming include: (1) not disturbing additional surface; (2) making use of existing infrastructure and wellbores while avoiding waste and increasing recovery; and (3) avoiding the need for unitization by conducting EOR injection and production operations within a single wellbore.

7. OXY requests authorization to operate this Pilot Project for a period of five years.

8. OXY seeks authority to use one of the following six existing horizontal wells within the Project Area to serve as the IWM EOR injection well that will inject produced gas into the Bone Spring formation:

- a. The **Patton MDP1 “18” Federal 5H** (API No. 30-015-44272)[‡] with a surface hole location 160 feet FNL and 285 feet FEL (Unit A) in Section 18, Township 24 South, Range 31 East, and a bottom hole location 20 feet FSL and 1,035 feet FEL (Unit P) in Section 18, Township 24 South, Range 31 East, NMPM, Eddy, New Mexico;
- b. The **Patton MDP1 “17” Federal 1H** (API No. 30-015-44459)[‡] with a surface hole location 170 feet FNL and 846 feet FWL (Unit M) in Section 8, Township 24 South, Range 31 East, and a bottom hole location 196 feet FSL and 484 feet FWL (Unit M) in Section 17, Township 24 South, Range 31 East, NMPM, Eddy, New Mexico;
- c. The **Patton MDP1 “18” Federal 3H** (API No. 30-015-44333)[‡] with a surface hole location 170 feet FNL and 1,928 feet FWL (Unit C) in Section 18, Township 24 South, Range 31 East, and a bottom hole location 200 feet FSL and 2,513 feet FWL (Unit N) in Section 18, Township 24 South, Range 31 East, NMPM, Eddy, New Mexico;
- d. The **Patton MDP1 “18” Federal 7H** (API No. 30-015-44273)[‡] with a surface hole location 150 feet FNL and 255 feet FEL (Unit A) in Section 18, Township 24 South, Range 31 East, and a bottom hole location 51 feet FSL and 402 feet FEL (Unit P) in Section 18, Township 24 South, Range 31 East, NMPM, Eddy, New Mexico;

[‡] These wells are currently under an existing Closed-Loop Gas Capture Pilot Project Order (Order No. R-22208). If any one of them is selected as the IWM EOR injection well, OXY will remove it from Order No. R-22208, as a condition of approval and authorization to commence injection under this Pilot Project.

- e. The **Patton MDP1 “17” Federal 2H** (API No. 30-015-44460) with a surface hole location 170 feet FNL and 906 feet FWL (Unit M) in Section 8, Township 24 South, Range 31 East, and a bottom hole location 26 feet FSL and 1,269 feet FWL (Unit M) in Section 17, Township 24 South, Range 31 East, NMPM, Eddy, New Mexico; and
- f. The **Patton MDP1 “17” Federal 3H** (API No. 30-015-44496) with a surface hole location 432 feet FSL and 2,232 feet FWL (Unit N) in Section 8, Township 24 South, Range 31 East, and a bottom hole location 195 feet FSL and 2,205 feet FWL (Unit N) in Section 17, Township 24 South, Range 31 East, NMPM, Eddy, New Mexico.

9. The **Patton MDP1 “18” Federal 5H** (API No. 30-015-44272) is the preferred candidate for IWM EOR injection at this time; however, OXY is continuing to evaluate the five other potential candidate injection wells within the Project Area. OXY therefore requests authorization to inject for all six candidate wells even though OXY intends to inject into only one well for purposes of this Pilot Project.

10. The maximum allowable surface injection pressure (“MASP”) for the Pilot Project is proposed to be 4,590 psi.

11. The proposed average daily injection rate is expected to be approximately 1.5 MMSCF/day with an expected maximum injection rate of 3 MMSCF/day. The estimated maximum injection rate will be limited by the injection assembly in the selected well.

12. Injection along the horizontal portion of the selected wellbore will be in the Second Bone Spring Sand interval within Bone Spring formation through existing perforations and at the following approximate true vertical depth in one of the following wells:

- a. The **Patton MDP1 “18” Federal 5H** between 9,950 feet and 9,995 feet, within the Cotton Draw, Bone Spring [Pool Code 13367];
- b. The **Patton MDP1 “17” Federal 1H** between 9,982 feet and 9,983 feet, within the Cotton Draw, Bone Spring [Pool Code 13367];
- c. The **Patton MDP1 “18” Federal 3H** between 9,900 feet and 9,997 feet, within the Cotton Draw, Bone Spring [Pool Code 13367];
- d. The **Patton MDP1 “18” Federal 7H** between 10,020 feet and 10,040 feet, within the Corral Draw, Bone Spring [Pool Code 96238];
- e. The **Patton MDP1 “17” Federal 2H** between 9,987 feet and 9,994 feet, within the Cotton Draw, Bone Spring [Pool Code 13367]; and
- f. The **Patton MDP1 “17” Federal 3H** between 10,100 feet and 10,055 feet, within the Cotton Draw, Bone Spring [Pool Code 13367].

13. The source gas for injection will be from OXY’s Sand Dunes South Corridor Central Tank Battery (“CTB”) and will be comprised of gas produced from the Delaware, Bone Spring, and Wolfcamp pools. All leases and wells producing source gas for injection and the candidate IWM EOR injection wells within the Pilot Project are under a single permit authorizing surface commingling (PLC-989-A).

14. Additional source wells may be added over time under an approved surface commingling authorization. Each of OXY’s proposed IWM EOR injection wells are operated by OXY.

15. Information on each of the candidate IWM EOR injection wells, including wellbore diagrams, identification and location information, casing and cementing details, tubing details, packers, perforation depths, and formations tops, are detailed in Injection Well Data Sheets.

16. Data, maps, and geologic analyses confirming that the Bone Spring formation, including the targeted injection interval, is suitable for the proposed EOR injection are included in **Exhibit A**. 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.

17. The top of the Bone Spring formation in this area is at approximately 6,878 feet total vertical depth in this area and extends down to the top of the Wolfcamp formation.

18. 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.

19. A copy of this Application has been provided to all affected parties as required by Division Rules and notice of the hearing on this application will be provided in a newspaper of general circulation in Eddy County.

20. Approval of this application is in the best interests of conservation, the prevention of waste, and the protection of correlative rights. The Pilot Project is expected to result in the production of substantially more hydrocarbons from the Project Area than would otherwise be produced.

WHEREFORE, OXY USA Inc. requests that this Application be set for hearing before an Examiner of the Oil Conservation Division on January 9, 2025, and that after notice and hearing this Application be approved.

Respectfully submitted,

HOLLAND & HART LLP

By: 

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pmvance@hollandhart.com

ATTORNEYS FOR OXY USA INC.

CASE _____ :

Application of OXY USA Inc. for Authorization to Inject and Creation of an Enhanced Oil Recovery Pilot Project, Eddy County, New Mexico. Applicant the seeks an order authorizing OXY to inject for purposes of an enhanced oil recovery (“EOR”) pilot project in the Second Bone Spring Sand interval within the Bone Spring formation (“Pilot Project”), dedicated to a proposed project area comprised of approximately 960-acres, more or less, in Eddy County, New Mexico, (the “Project Area”), as follows:

Township 24 South, Range 29 East

Section 17: W/2

Section 18: E/2 W/2; E/2

Applicant proposes to initiate an Intra-Well Miscibility (“IWM”) EOR injection pilot project within a single existing horizontal well. OXY seeks authority to use one of the following six existing horizontal wells within the Project Area to serve as the IWM EOR injection well:

- The **Patton MDP1 “18” Federal 5H** (API No. 30-015-44272);
- The **Patton MDP1 “17” Federal 1H** (API No. 30-015-44459);
- The **Patton MDP1 “18” Federal 3H** (API No. 30-015-44333);
- The **Patton MDP1 “18” Federal 7H** (API No. 30-015-44273);
- The **Patton MDP1 “17” Federal 2H** (API No. 30-015-44460); and
- The **Patton MDP1 “17” Federal 3H** (API No. 30-015-44496).

Applicant seeks authority to inject produced gas from the Delaware, Bone Spring, and Wolfcamp pools into the Second Bone Spring interval of the Bone Spring formation along the horizontal portion of one of the candidate wellbores between approximately 9,900 feet and 10,100 feet true vertical depth. The maximum allowable surface injection pressure is proposed to be 4,590 psi. The proposed average daily injection rate is expected to be approximately 1.5 MMSCF/day with an expected maximum injection rate of 3 MMSCF/day. The subject acreage is located approximately 3 miles southeast of Malaga, New Mexico.

EXHIBIT
A

1



DECEMBER 2024

OXY REGULATORY

INTRA-WELL MISCIBILITY (“IWM”)

EOR PILOT PROJECT





PROJECT OVERVIEW

PROJECT OVERVIEW

- Description
 - Intra-well Miscibility (“IWM”) is an Enhanced Oil Recovery (“EOR”) technique that utilizes miscible gas as an injectant to sweep the pore space of the depleted reservoir around a horizontal wellbore.
- Benefits
 - Simultaneous injection and production operations.
 - Utilize existing infrastructure and wellbores.
 - Single-well project
 - No additional surface disturbances.
 - Prevents waste of resources.

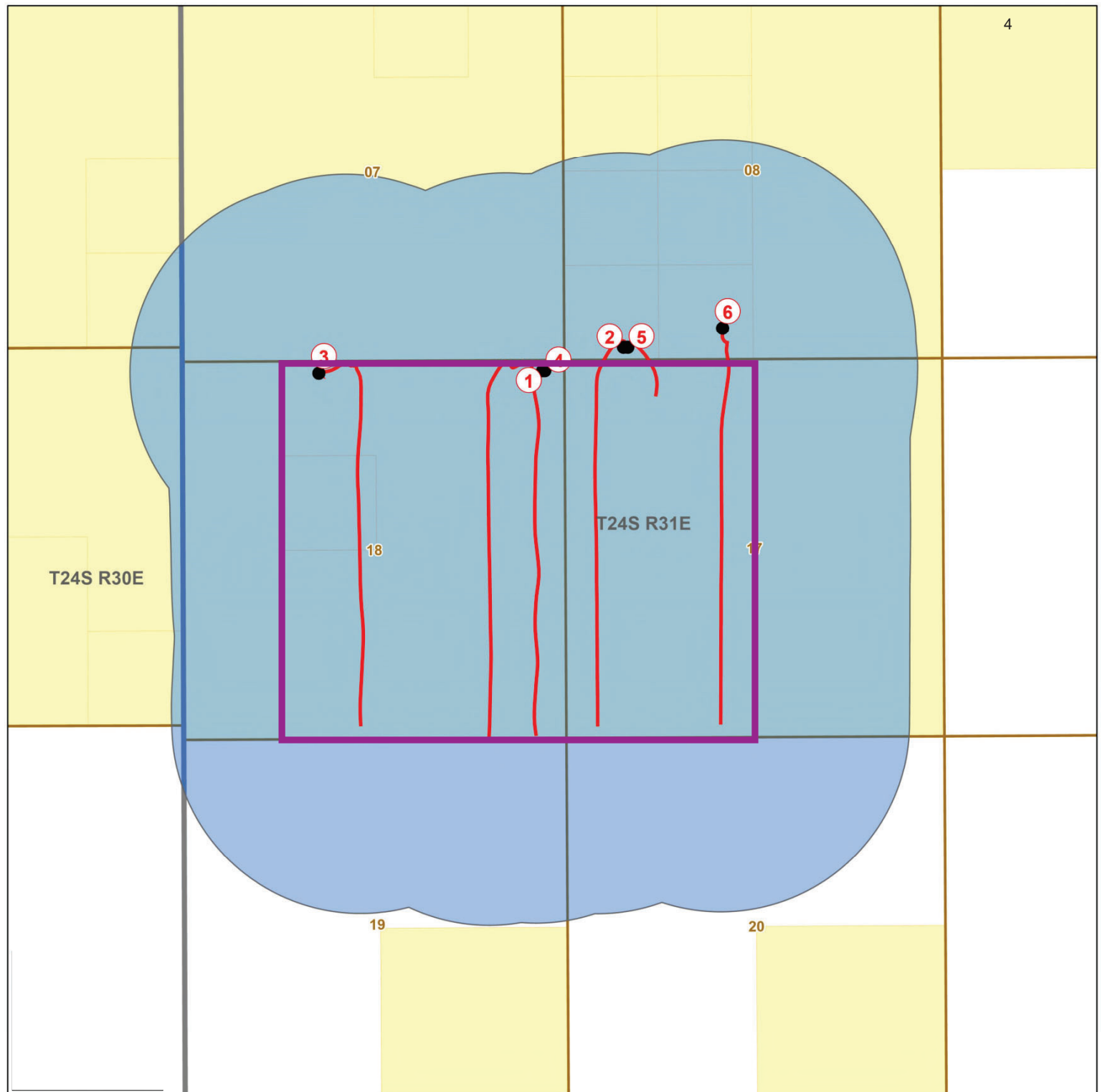
- Estimated Timeline

1. Screen candidates with EM logs	1 month
2. Install compressor and downhole injection assembly	1 month
3. Simultaneous inject and produce	48 months





Gantt Chart



WM Pilot Project Project Area Map



Key

-  Project Area Outline
-  Oxy Leasehold
-  IWM Candidate well
-  1/2 Mile Buffer

CANDIDATE LIST AND REQUESTED RELIEF

Candidate Well List			
Well ID	API	Short Well Name	Comment
★ 1	30-015-44272	PATTON18-5H	CLGC well
2	30-015-44459	PATTON17-1H	CLGC well
3	30-015-44333	PATTON18-3H	CLGC well
4	30-015-44273	PATTON18-7H	CLGC well
5	30-015-44460	PATTON17-2H	
6	30-015-44496	PATTON17-3H	

★ Primary Candidate

- Requested Relief:
 1. Pilot project approval for 5 years.
 2. 6 candidate wells producing/injection from the Second Bone Spring Sand (~10,000 TVD) with one well selected for the pilot project.
 3. Authority to simultaneously inject produced, hydrocarbon gas while producing oil and gas.
 4. Max allowable surface pressure (“MASP”) of 4590 psi for injecting produced, hydrocarbon gas.
 5. Mechanical Integrity Tests (“MIT”)
 - Packer for MIT to be set below the top of the Bone Spring (~8100 ft TVD)
 - Post pilot project MIT to be ran after injection ends

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL
RESOURCES DEPARTMENT

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

FORM C-108
Revised June 10, 2003

APPLICATION FOR AUTHORIZATION TO INJECT

I. PURPOSE: _____ Secondary Recovery Pressure Maintenance _____ Disposal _____ Storage
Application qualifies for administrative approval? _____ Yes No

II. OPERATOR: OXY USA INC

ADDRESS: P.O. BOX 4294, HOUSTON, TX, 77210-4294

CONTACT PARTY: STEPHEN JANACEK PHONE: 972-404-3722

III. WELL DATA: Complete the data required on the reverse side of this form for each well proposed for injection.
Additional sheets may be attached if necessary. **SEE ATTACHED.**

IV. Is this an expansion of an existing project? _____ Yes No
If yes, give the Division order number authorizing the project: _____

V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review. **SEE ATTACHED.**

VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail. **SEE ATTACHED.**

VII. Attach data on the proposed operation, including: **SEE ATTACHED.**

1. Proposed average and maximum daily rate and volume of fluids to be injected;
2. Whether the system is open or closed; **CLOSED**
3. Proposed average and maximum injection pressure;
4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and,
5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).

*VIII. Attach appropriate geologic data on the injection zone including appropriate lithologic detail, geologic name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such sources known to be immediately underlying the injection interval. **SEE ATTACHED.**

IX. Describe the proposed stimulation program, if any. **NO STIMULATION PROGRAM PLANNED AT TIME OF APPLICATION.**

*X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need not be resubmitted).

*XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken. **NOT INCLUDED.**

XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.

XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.

XIV. Certification: I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

NAME: STEPHEN JANACEK TITLE: REGULATORY ENGINEER

SIGNATURE:  DATE: 12/9/2024

E-MAIL ADDRESS: STEPHEN_JANACEK@OXY.COM

* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstances of the earlier submittal: _____

DISTRIBUTION: File Electronically via OCD Permitting

Side 2

III. WELL DATA

A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include: **SEE ATTACHED.**

- (1) Lease name; Well No.; Location by Section, Township and Range; and footage location within the section.
- (2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.
- (3) A description of the tubing to be used including its size, lining material, and setting depth.
- (4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District Offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated. **SEE ATTACHED.**

- (1) The name of the injection formation and, if applicable, the field or pool name.
- (2) The injection interval and whether it is perforated or open-hole.
- (3) State if the well was drilled for injection or, if not, the original purpose of the well.
- (4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.
- (5) Give the depth to and the name of the next higher and next lower oil or gas zone in the area of the well, if any.

XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

- (1) The name, address, phone number, and contact party for the applicant;
- (2) The intended purpose of the injection well; with the exact location of single wells or the Section, Township, and Range location of multiple wells;
- (3) The formation name and depth with expected maximum injection rates and pressures; and,
- (4) A notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505, within 15 days.

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

District I
1823 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

AMENDED REPORT
As Drilled

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-44272	Pool Code 13367	Pool Name Cotton Draw; Bone spring
Property Code 316483	Property Name PATTON MDP1 "18" FEDERAL	Well Number 5H
OGRID No. 16696	Operator Name OXY USA INC.	Elevation 3523.8'

Surface Location

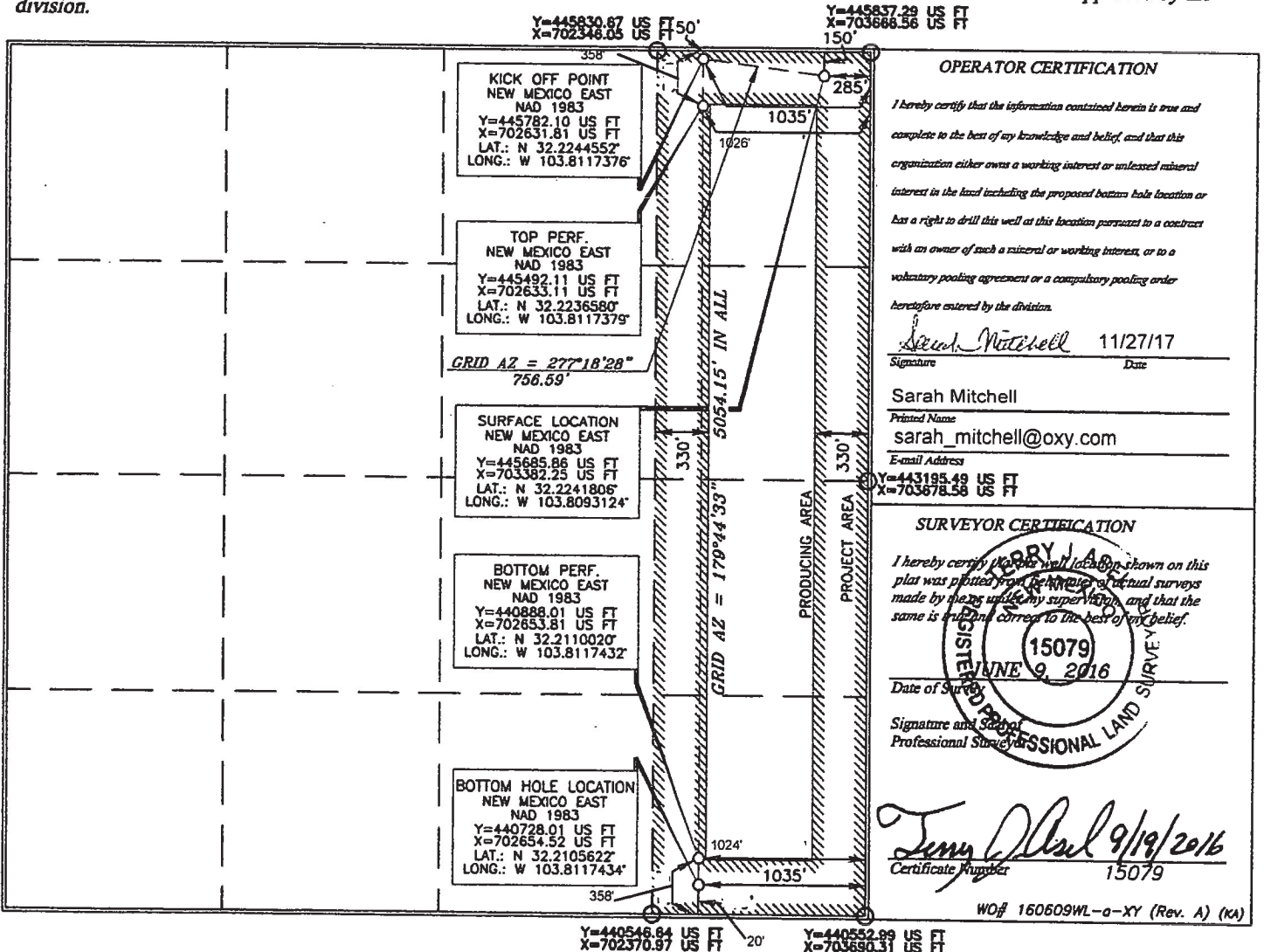
UL or lot no.	Section	Township	Range	Lot Ida	Feet from the	North/South line	Feet from the	East/West line	County
A	18	24 SOUTH	31 EAST, N.M.P.M.		150'	NORTH	285'	EAST	EDDY

Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Ida	Feet from the	North/South line	Feet from the	East/West line	County
P	18	24 SOUTH	31 EAST, N.M.P.M.		20'	SOUTH	1035'	EAST	EDDY

Dedicated Acres 160	Joint or Infill Y	Consolidation Code	Order No. NSL-7524, TP: 358 FNL 1026 FEL, BP: 358 FSL 1024 FEL
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No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



District I
1425 N. French Dr., Hobbs, NM 88340
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. Fort St., Artesia, NM 88210
Phone: (575) 745-1231 Fax: (575) 745-9720
District III
1000 Rio Arriba Road, Artesia, NM 87410
Phone: (505) 334-6173 Fax: (505) 334-6170
District IV
1270 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

NM OIL CONSERVATION
ARTESIA DISTRICT
RECEIVED
6 2018

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

AMENDED REPORT
(As-Drilled)

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-44459	Pool Code 13367	Pool Name Cotton Draw Bone Spring
Property Code 319619	Property Name PATTON MDP1 "17" FEDERAL	Well Number 1H
OGRID No. 16696	Operator Name OXY USA INC.	Elevation 3529.5'

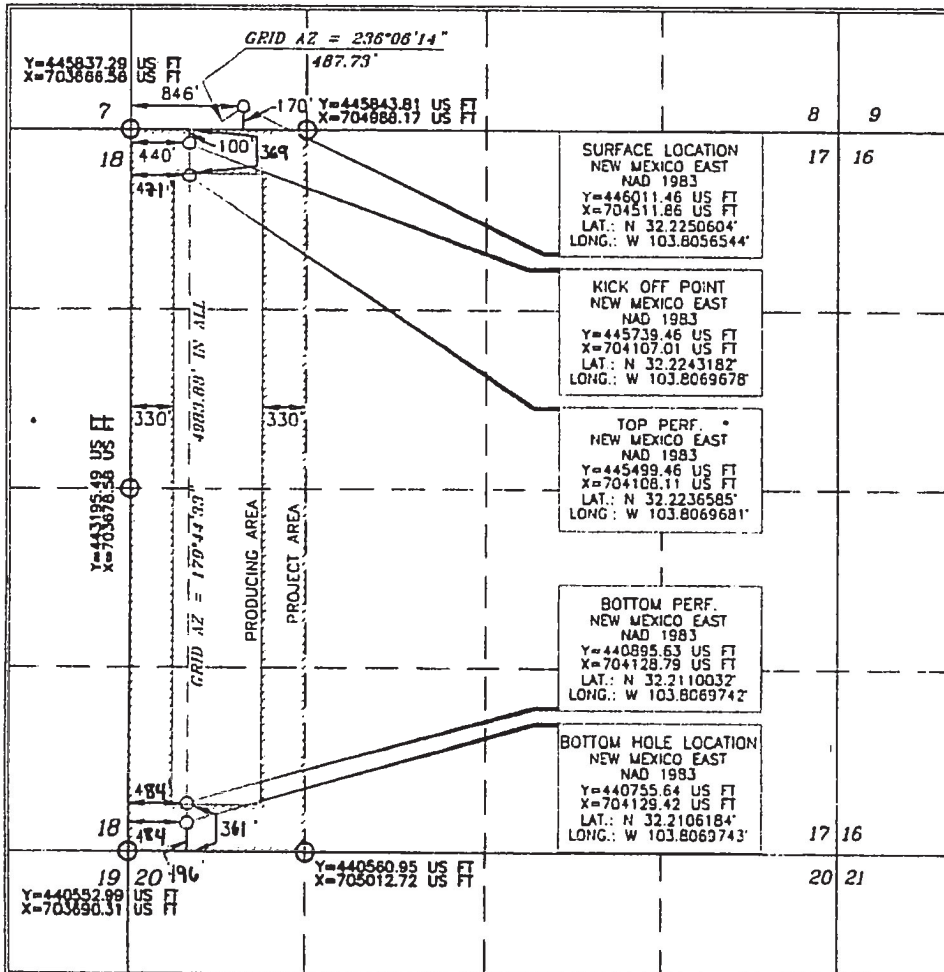
Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	8	24 SOUTH	31 EAST, N.M.P.M.		170'	SOUTH	846'	WEST	EDDY

Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	17	24 SOUTH	31 EAST, N.M.P.M.		170' 796'	SOUTH	846' 484'	WEST	EDDY
Dedicated Acres 160	Joint or Infill Y	Consolidation Code	-Order No. BP- 361 FSL 484 FWL TP- 369 FNL 471 FWL						

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that I am a geophysicist either owner a working interest or undivided mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or as a subsidiary pooling agreement or a compulsory pooling under authority conferred by the division.

Signature: *[Signature]* Date: **3/26/18**
Printed Name: **Jana Mendiola**
E-mail Address: **janalyn_mendiola@oxy.com**

SURVEYOR CERTIFICATION

I hereby certify that the information contained herein on this plat was prepared by me or under my supervision, and that the same is true and correct to the best of my belief.

Date of Survey: **FEBRUARY 4, 2016**

Signature and Seal of Professional Surveyor: *[Signature]*
Certificate Number: **15079**

Wof 160204WL-a-XY (Rev. A) (CA)

District I
1425 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Acton, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

AMENDED REPORT
(As-Drilled)

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-44333	Pool Code 13367	Pool Name Cotton Draw; Bone Spring
Property Code 316483	Property Name PATTON MDP1 "18" FEDERAL	
OGRID No. 16696	Operator Name OXY USA INC.	Well Number 3H
		Elevation 3534.0'

Surface Location

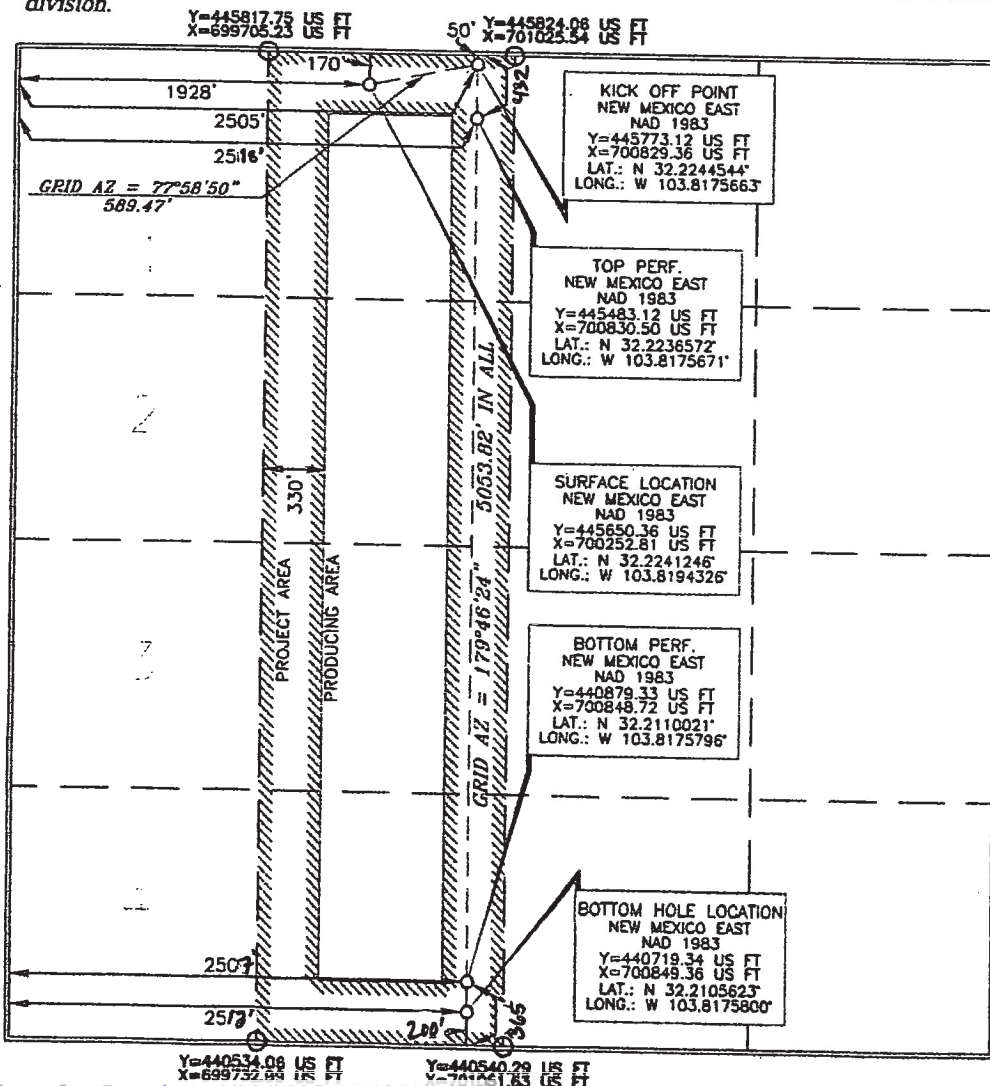
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
C	18	24 SOUTH	31 EAST, N.M.P.M.		170'	NORTH	1928'	WEST	EDDY

Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	18	24 SOUTH	31 EAST, N.M.P.M.		100' 200'	SOUTH	2505' 2513'	WEST	EDDY

Dedicated Acres 160	Joint or Infill Y	Consolidation Code	Order No. NSL-7523	BP- 365 FSL 2507 FWL
				TP- 432 FNL 2518 FWL

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

[Signature] 2/12/18
Signature Date
Jana Mendiola
Printed Name
jana@n-mendiola2oxy.com
E-mail Address

SURVEYOR CERTIFICATION

I hereby certify that the information shown on this plat was prepared from field notes of actual surveys made in my or under my supervision, and that the same is true and correct to the best of my belief.

DECEMBER 22, 2016
Date of Survey
[Signature]
Signature and Seal
Professional Surveyor

[Signature] 9/19/2016
Certificate Number 15079

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
611 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

AMENDED REPORT
As Drilled

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-44273	Pool Code 13367	Pool Name Cotton Draw; Bone Spring
Property Code 316483	Property Name PATTON MDP1 "18" FEDERAL	Well Number 7H
OGRID No. 16696	Operator Name OXY USA INC.	Elevation 3524.1'

Surface Location

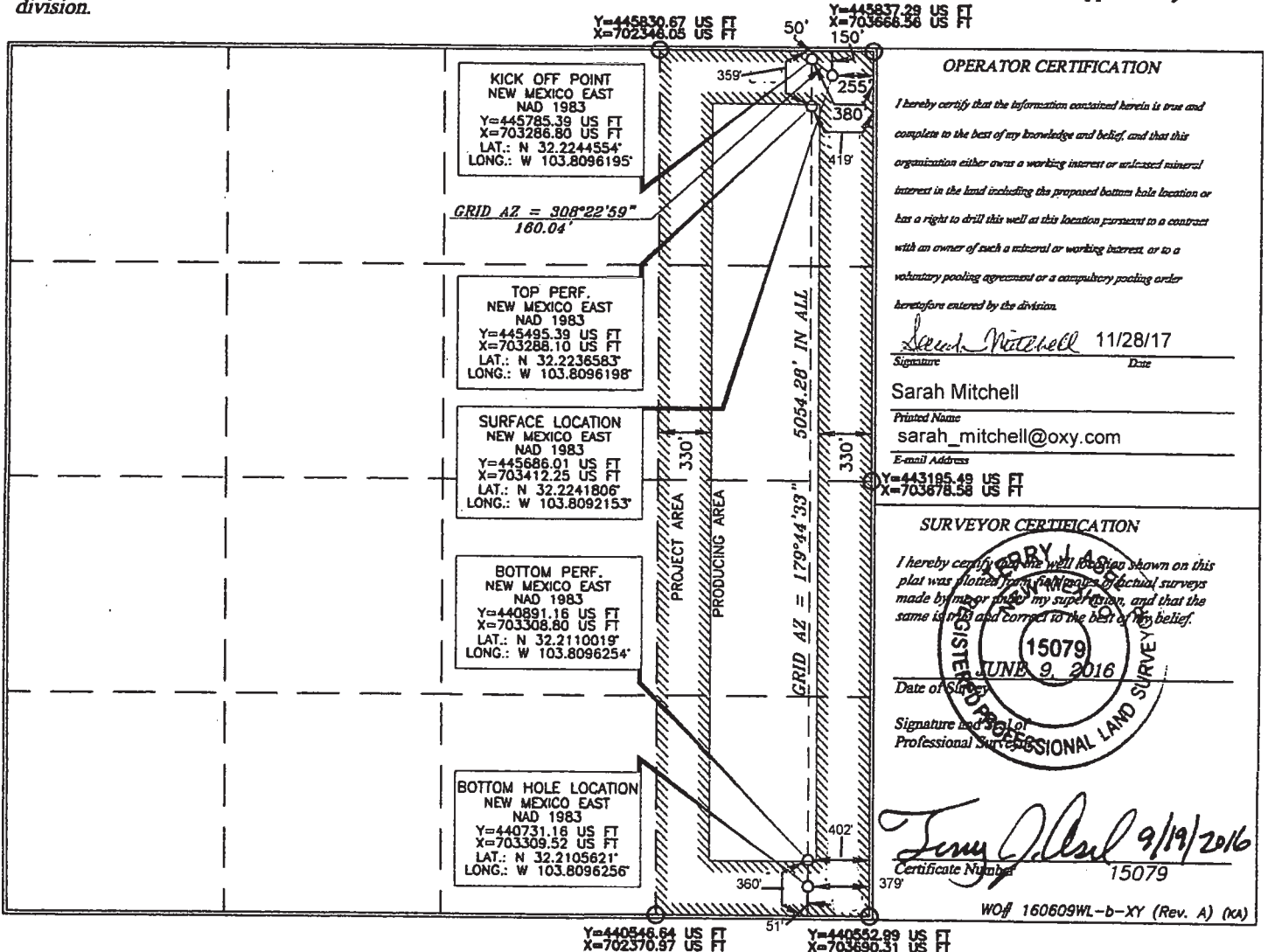
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	18	24 SOUTH	31 EAST, N.M.P.M.		150'	NORTH	255'	EAST	EDDY

Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	18	24 SOUTH	31 EAST, N.M.P.M.		51'	SOUTH	402'	EAST	EDDY

Dedicated Acres 160	Joint or Infill Y	Consolidation Code	Order No. TP: 359' FNL 419' FEL BP: 360' FSL 402' FEL
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No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1200 Fax: (575) 748-0720
District III
1000 Rio Brazos Road, Artesia, NM 87410
Phone: (505) 334-6179 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico **NM OIL CONSERVATION**
ARTESIA DISTRICT
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

RECEIVED
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Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

AMENDED REPORT
(As-Drilled)

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-44460	Pool Code 13367	Pool Name Cotton Draw Bone Spring
Property Code 319619	Property Name PATTON MDP1 "17" FEDERAL	Well Number 2H
OGRID No. 160916	Operator Name OXY USA INC.	Elevation 3529.3'

Surface Location

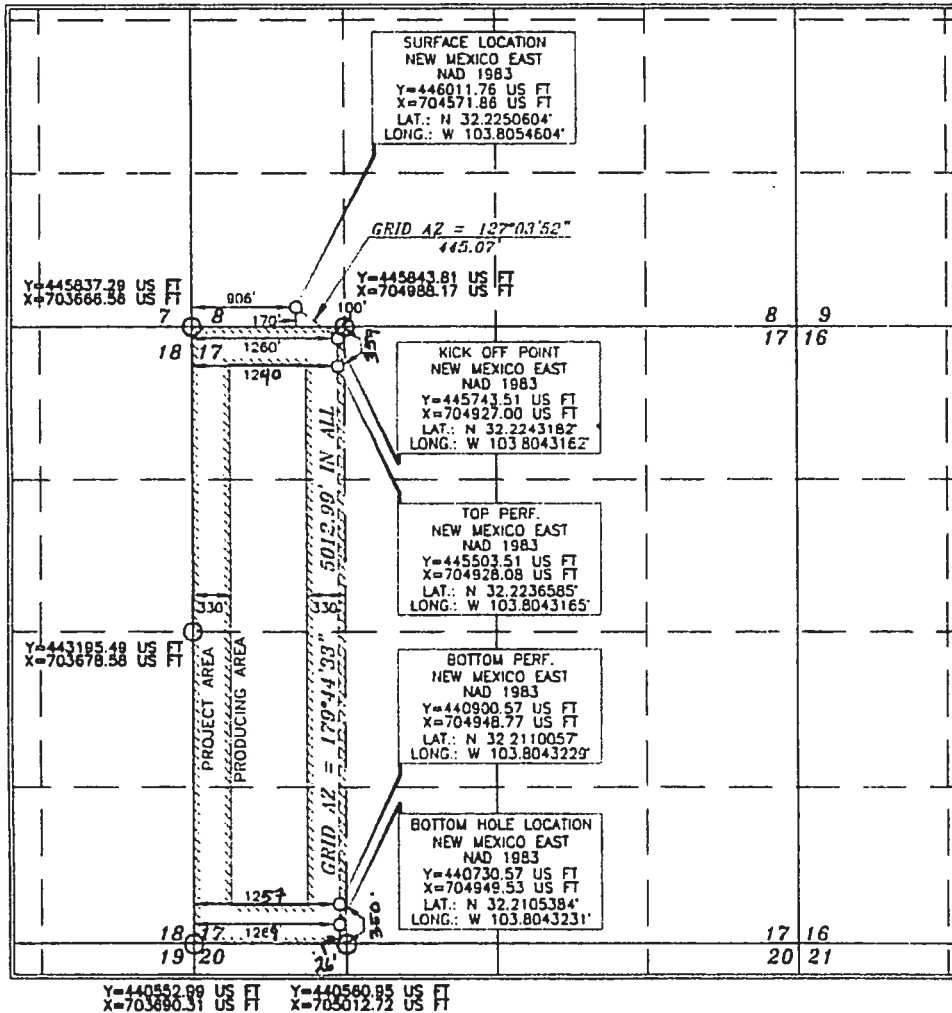
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	8	24 SOUTH	31 EAST, N.M.P.M.		170'	SOUTH	906'	WEST	EDDY

Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	17	24 SOUTH	31 EAST, N.M.P.M.		126' 26	SOUTH	126' 1269	WEST	EDDY

Dedicated Acres 160	Joint or Infill Y	Consolidation Code	Order No. NSL-7543	BP - 350 FSL 1257 FWL TP - 359 FNL 1240 FWL
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No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or undivided mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or as a voluntary pooling agreement or a compulsory pooling order.

Authorized by the division:

Signature: *[Signature]* Date: 3/26/18
Printed Name: Jana Mendiola
E-mail Address: janalyn_mendiola@oxy.com

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from the field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

Date of Survey: OCTOBER 7, 2016

Signature and Title: *[Signature]* PROFESSIONAL LAND SURVEYOR
Certificate Number: 15079

WO# 161007WL-b-XY (NA)

District I
1625 N. Francis Dr., Hobbs, NM 88240
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Phone: (505) 334-6173 Fax: (505) 334-6173
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

NEW MEXICO CONSERVATION DISTRICT
ARTESIA DISTRICT
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Form C-102
Revised August 1, 2011
Submit one copy to appropriate District Office

AMENDED REPORT
As Drilled

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-44496	Pool Code 13367	Pool Name COTTON DRAW; BONE SPRING
Property Code 319619	Property Name PATTON MDP1 "17" FEDERAL	Well Number 3H
OGRID No. 16696	Operator Name OXY USA INC.	Elevation 3540.8'

Surface Location

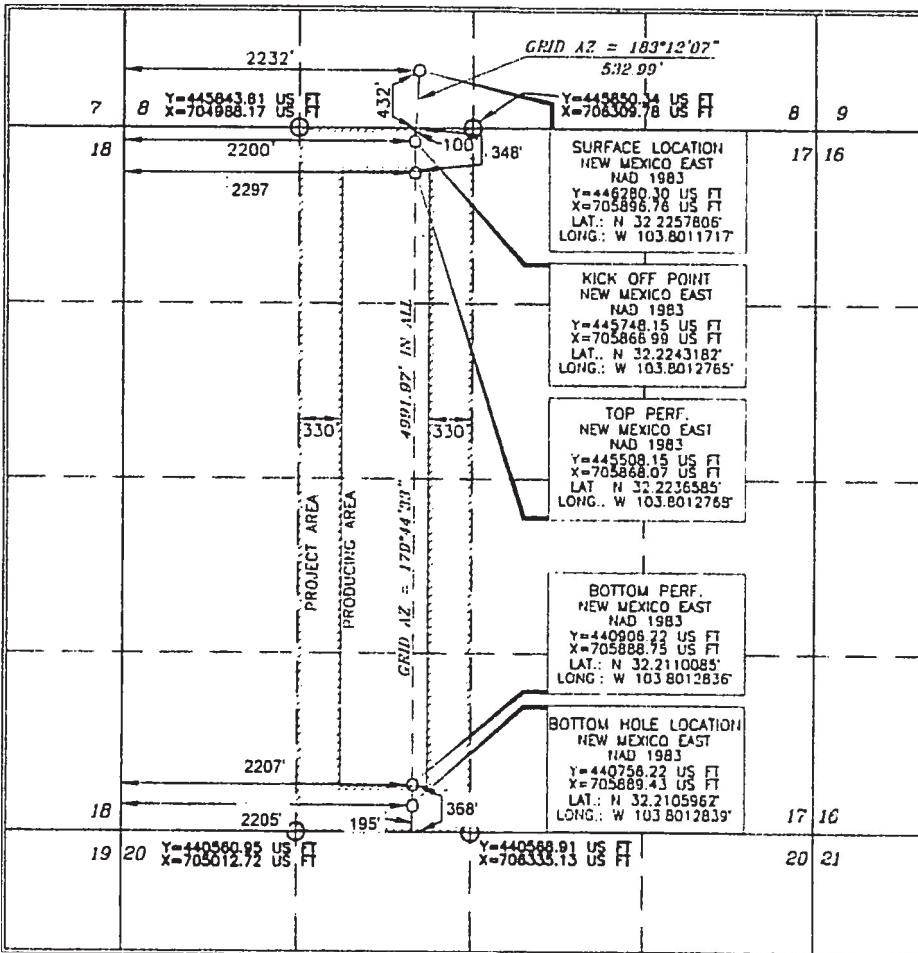
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East West line	County
N	B	24 SOUTH	31 EAST, N.M.P.M.		432'	SOUTH	2232'	WEST	EDDY

Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East West line	County
N	17	24 SOUTH	31 EAST, N.M.P.M.		195'	SOUTH	2205'	WEST	EDDY

Dedicated Acres 160	Joint or Infill Y	Consolidation Code	Order No. TP: 348 FNL 2297 FWL BP: 368 FSL 2207 FWL
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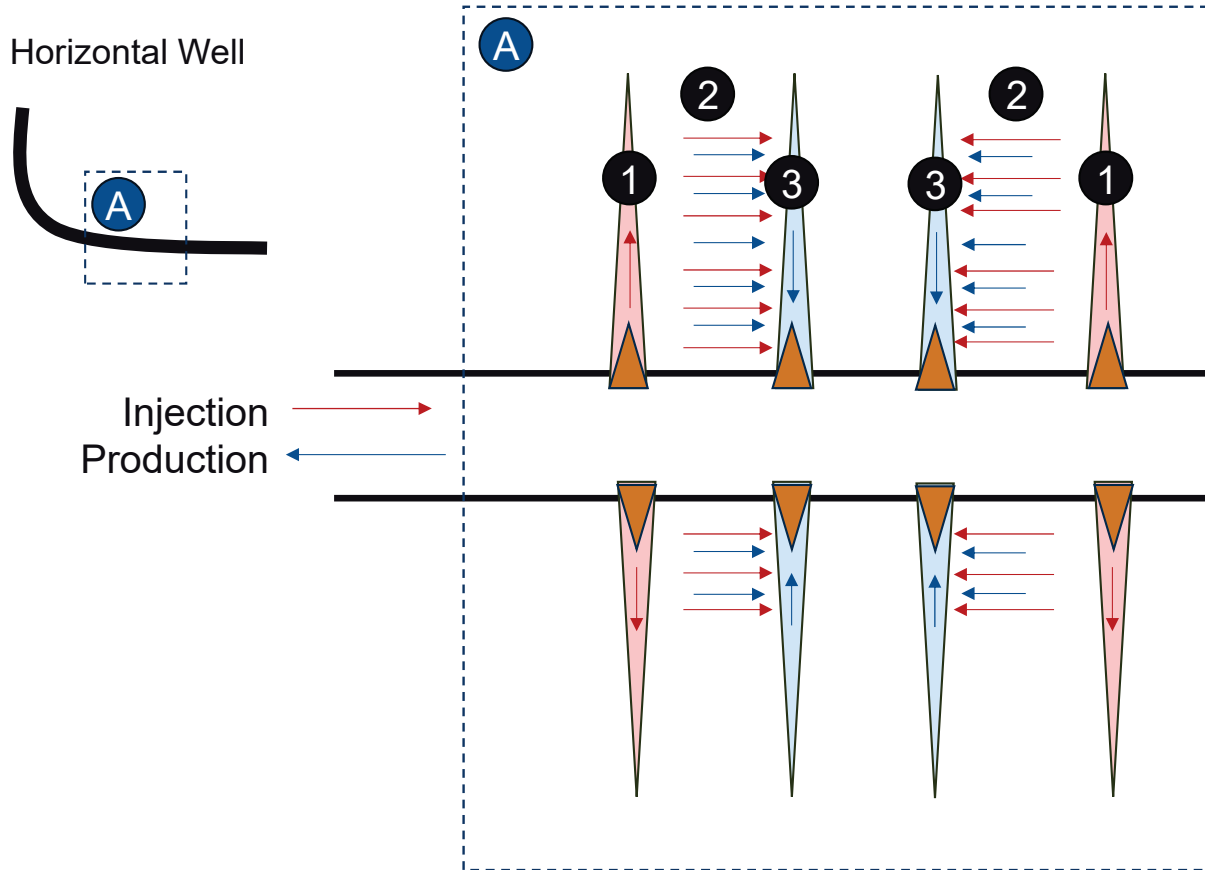
No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



OPERATOR CERTIFICATION
I hereby certify that the information contained herein is true and correct to the best of my knowledge and belief, and that the operations herein cover a working interest or undivided mineral interest in the land including the proposed bottom hole location or has a right to drill the well at this location pursuant to a contract with an owner of such a mineral or working interest or to a subsidiary pending agreement or a compulsory pooling order.
Signature: Sarah Mitchell
Date: 3/28/18
Printed Name: Sarah Mitchell
E-mail Address: sarah_mitchell@oxy.com

SURVEYOR CERTIFICATION
I hereby certify that the well location shown on this plat was plotted from actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.
Date of Survey: FEBRUARY 4, 2016
Signature and Seal: Terry J. Asch
Professional Surveyor
Certificate Number: 15079
Date: 12/4/2016

WHAT HAPPENS DOWNHOLE?



1. **Inject** into perf clusters.
2. Sweep reservoir pore space between perf clusters with produced gas.
3. **Produce** hydrocarbons from offset perf clusters.

GAS SOURCE LIST AND COMMINGLING PERMIT

- All source gas wells produce to the Sand Dunes South Corridor CTB – Train #1
- Producing pools are:
 1. Poker Lake; Delaware, Northwest
 2. Cotton Draw; Bone Spring
 3. Purple Sage; Wolfcamp (Gas)
- Surface Comingling Permit: PLC 898-A



IWM Source Gas Well List
PLC 898-A

SAND DUNES SOUTH CORRIDOR CTB - TRAIN #1

Well Name	API	Pool	POOL CODE	LEASE OR CA
NIMITZ MDP1 12 FEDERAL 1H	30-015-44526	COTTON DRAW;BONE SPRING	13367	CA NMNM138992
NIMITZ MDP1 12 FEDERAL 2H	30-015-44580	COTTON DRAW;BONE SPRING	13367	CA NMNM138992
NIMITZ MDP1 12 FEDERAL 9H	30-015-44581	COTTON DRAW;BONE SPRING	13367	CA NMNM138995
NIMITZ MDP1 13 FEDERAL COM 2H	30-015-44498	COTTON DRAW;BONE SPRING	13367	CA NMNM 138996
NIMITZ MDP1 13 FEDERAL COM 3H	30-015-44525	COTTON DRAW;BONE SPRING	13367	CA NMNM 138997
PALLADIUM MDP1 7-6 FEDERAL COM 1H	30-015-44298	COTTON DRAW;BONE SPRING	13367	CA NMNM137968
PALLADIUM MDP1 7-6 FEDERAL COM 2H	30-015-44299	COTTON DRAW;BONE SPRING	13367	CA NMNM137968
PALLADIUM MDP1 7-6 FEDERAL COM 3Y	30-015-44457	COTTON DRAW;BONE SPRING	13367	CA NMNM137685
PALLADIUM MDP1 7-6 FEDERAL COM 6H	30-015-44293	COTTON DRAW;BONE SPRING	13367	CA NMNM137601
PATTON MDP1 17 FEDERAL 1H	30-015-44459	COTTON DRAW;BONE SPRING	13367	NMNM89172
PATTON MDP1 17 FEDERAL 2H	30-015-44460	COTTON DRAW;BONE SPRING	13367	NMNM89172
PATTON MDP1 17 FEDERAL 3H	30-015-44496	COTTON DRAW;BONE SPRING	13367	NMNM89172
PATTON MDP1 17 FEDERAL 4H	30-015-44497	COTTON DRAW;BONE SPRING	13367	NMNM89172
PATTON MDP1 17 FEDERAL 5H	30-015-44444	COTTON DRAW;BONE SPRING	13367	NMNM89172
PATTON MDP1 17 FEDERAL 6H	30-015-44445	COTTON DRAW;BONE SPRING	13367	NMNM89172
PATTON MDP1 18 FED 23H	30-015-44316	COTTON DRAW;BONE SPRING	13367	NMNM89819
PATTON MDP1 18 FED 33H	30-015-44338	COTTON DRAW;BONE SPRING	13367	NMNM89819
PATTON MDP1 18 FED 73H	30-015-44318	COTTON DRAW;BONE SPRING	13367	NMNM89819
PATTON MDP1 18 FEDERAL 1H	30-015-44317	COTTON DRAW;BONE SPRING	13367	NMNM89819
PATTON MDP1 18 FEDERAL 2H	30-015-44337	COTTON DRAW;BONE SPRING	13367	NMNM89819
PATTON MDP1 18 FEDERAL 3H	30-015-44333	COTTON DRAW;BONE SPRING	13367	NMNM89819
PATTON MDP1 18 FEDERAL 5H	30-015-44272	COTTON DRAW;BONE SPRING	13367	NMNM89819
PATTON MDP1 18 FEDERAL 7H	30-015-44273	COTTON DRAW;BONE SPRING	13367	NMNM89819
SUNRISE MDP1 8-5 FEDERAL COM 1H	30-015-44369	COTTON DRAW;BONE SPRING	13367	CA NMNM138291
SUNRISE MDP1 8-5 FEDERAL COM 2H	30-015-44395	COTTON DRAW;BONE SPRING	13367	CA NMNM138291
SUNRISE MDP1 8-5 FEDERAL COM 3H	30-015-44474	COTTON DRAW;BONE SPRING	13367	CA NMNM138294
SUNRISE MDP1 8-5 FEDERAL COM 4H	30-015-44475	COTTON DRAW;BONE SPRING	13367	CA NMNM138295
SUNRISE MDP1 8-5 FEDERAL COM 5H	30-015-44476	COTTON DRAW;BONE SPRING	13367	CA NMNM138296
SUNRISE MDP1 8-5 FEDERAL COM 6H	30-015-44473	COTTON DRAW;BONE SPRING	13367	CA NMNM138296
PATTON MDP1 18 FEDERAL 6H	30-015-43854	PURPLE SAGE;WOLFCAMP (GAS)	98220	NMNM89819
PATTON MDP1 17 FEDERAL 171H	30-015-44989	PURPLE SAGE;WOLFCAMP (GAS)	98220	NMNM89172
PATTON MDP1 17 FEDERAL 172H	30-015-44990	PURPLE SAGE;WOLFCAMP (GAS)	98220	NMNM89172
PATTON MDP1 17 FEDERAL 173H	30-015-44991	PURPLE SAGE;WOLFCAMP (GAS)	98220	NMNM89172
PATTON MDP1 17 FEDERAL 174H	30-015-45077	PURPLE SAGE;WOLFCAMP (GAS)	98220	NMNM89172
PATTON MDP1 17 FEDERAL 175H	30-015-45078	PURPLE SAGE;WOLFCAMP (GAS)	98220	NMNM89172

PATTON MDP1 17 FEDERAL 176H	30-015-45079	PURPLE SAGE;WOLFCAMP (GAS)	98220	NMNM89172
Sunrise MDP1 8-5 Fed 171H	30-015-44930	PURPLE SAGE;WOLFCAMP (GAS)	98220	CA NMNM105766133 PENDING
Sunrise MDP1 8-5 Fed 172H	30-015-44977	PURPLE SAGE;WOLFCAMP (GAS)	98220	CA NMNM105766133 PENDING
Sunrise MDP1 8-5 Fed 173H	30-015-44931	PURPLE SAGE;WOLFCAMP (GAS)	98220	CA NMNM105766133 PENDING
Sunrise MDP1 8-5 Fed 174H	30-015-45112	PURPLE SAGE;WOLFCAMP (GAS)	98220	CA NMNM105766134 PENDING
Sunrise MDP1 8-5 Fed 175H	30-015-45152	PURPLE SAGE;WOLFCAMP (GAS)	98220	CA NMNM105766134 PENDING
Sunrise MDP1 8-5 Fed 176H	30-015-45153	PURPLE SAGE;WOLFCAMP (GAS)	98220	CA NMNM105766134 PENDING
JEFF SMITH MDP1 7_18 FED COM 171H	30-015-47258	PURPLE SAGE;WOLFCAMP (GAS)	98220	CA NMNM105777378 PENDING
JEFF SMITH MDP1 7_18 FED COM 172H	30-015-47249	PURPLE SAGE;WOLFCAMP (GAS)	98220	CA NMNM105777378 PENDING
JEFF SMITH MDP1 7_18 FED COM 173H	30-015-47247	PURPLE SAGE;WOLFCAMP (GAS)	98220	CA NMNM105777378 PENDING
NIMITZ MDP1 13_1 FED COM 1H	30-015-48588	PURPLE SAGE;WOLFCAMP (GAS)	98220	CA PENDING E/2 W/2 & W/2 E/2 SEC 1, 12 & 13
NIMITZ MDP1 13_1 FED COM 171H	30-015-48578	PURPLE SAGE;WOLFCAMP (GAS)	98220	CA PENDING W/2 W/2 SEC 1, 12 & 13
NIMITZ MDP1 13_1 FED COM 172H	30-015-48613	PURPLE SAGE;WOLFCAMP (GAS)	98220	CA PENDING E/2 W/2 & W/2 E/2 SEC 1, 12 & 13
NIMITZ MDP1 13_1 FED COM 173H	30-015-48589	PURPLE SAGE;WOLFCAMP (GAS)	98220	CA PENDING E/2 W/2 & W/2 E/2 SEC 1, 12 & 13
NIMITZ MDP1 13_1 FED COM 311H	30-015-48586	PURPLE SAGE;WOLFCAMP (GAS)	98220	CA PENDING W/2 W/2 SEC 1, 12 & 13
NIMITZ MDP1 13_1 FED COM 312H	30-015-48590	PURPLE SAGE;WOLFCAMP (GAS)	98220	CA PENDING E/2 W/2 & W/2 E/2 SEC 1, 12 & 13
GILA 12 FEDERAL 2H	30-015-36401	POKER LAKE;DELAWARE, NORTHWEST	96046	NMNM82896
NIMITZ 12 FEDERAL 3H	30-015-41011	POKER LAKE;DELAWARE, NORTHWEST	96046	NMNM82896
NIMITZ 12 FEDERAL 4H	30-015-41506	POKER LAKE;DELAWARE, NORTHWEST	96046	NMNM82896
NIMITZ 12 FEDERAL 5H	30-015-41657	POKER LAKE;DELAWARE, NORTHWEST	96046	NMNM82896
CHUCK SMITH MDP1 8 17 FED COM 4H	30-015-54092	COTTON DRAW; BONE SPRING	13367	CA PENDING E/2 SEC 8 & 17
CHUCK SMITH MDP1 8 17 FED COM 5H	30-015-54050	COTTON DRAW; BONE SPRING	13367	CA PENDING E/2 SEC 8 & 17
CHUCK SMITH MDP1 8 17 FED COM 21H	30-015-54093	COTTON DRAW; BONE SPRING	13367	CA PENDING W/2 SEC 8 & 17
CHUCK SMITH MDP1 8 17 FED COM 22H	30-015-54097	COTTON DRAW; BONE SPRING	13367	CA PENDING W/2 SEC 8 & 17
CHUCK SMITH MDP1 8 17 FED COM 23H	30-015-54260	COTTON DRAW; BONE SPRING	13367	CA PENDING W/2 SEC 8 & 17

TO BE ADDED

TO BE ADDED

TO BE ADDED

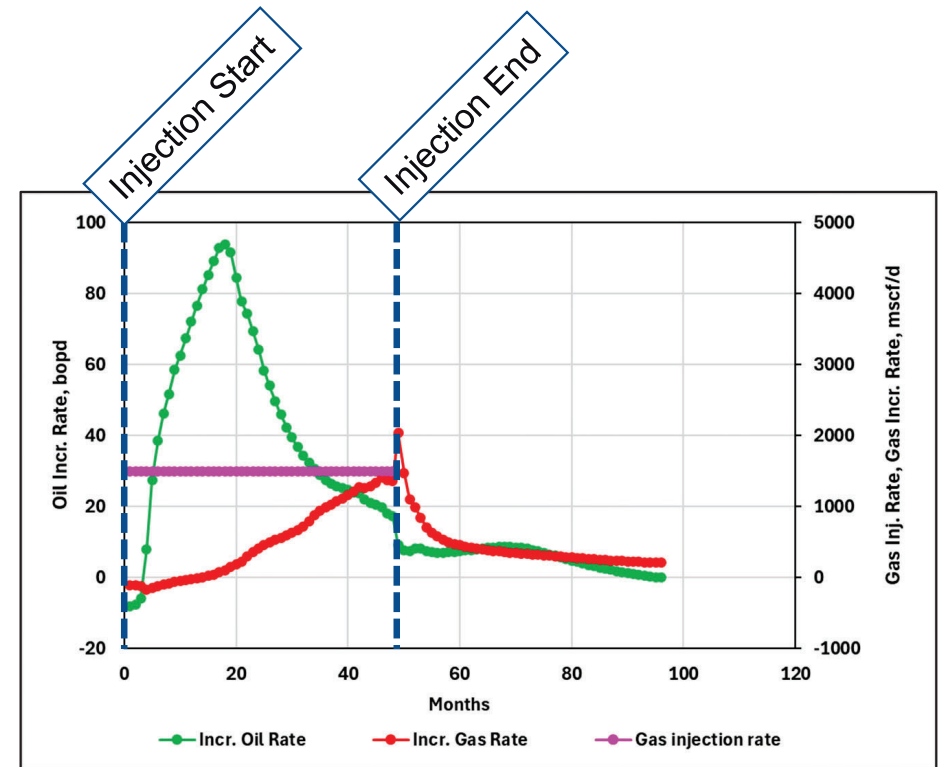
TO BE ADDED

TO BE ADDED

CHUCK SMITH MDP1 8 17 FED COM 44H	30-015-54091	COTTON DRAW; BONE SPRING	13367	CA PENDING E/2 SEC 8 & 17	TO BE ADDED
CHUCK SMITH MDP1 8 17 FED COM 2H	30-015-54049	PURPLE SAGE;WOLFCAMP (GAS)	98220	CA PENDING W/2 SEC 8 & 17	TO BE ADDED
CHUCK SMITH MDP1 8 17 FED COM 3H	30-015-54096	PURPLE SAGE;WOLFCAMP (GAS)	98220	CA PENDING E/2 SEC 8 & 17	TO BE ADDED
CHUCK SMITH MDP1 8 17 FED COM 24H	30-015-54047	PURPLE SAGE;WOLFCAMP (GAS)	98220	CA PENDING E/2 SEC 8 & 17	TO BE ADDED
CHUCK SMITH MDP1 8 17 FED COM 25H	30-015-54094	PURPLE SAGE;WOLFCAMP (GAS)	98220	CA PENDING E/2 SEC 8 & 17	TO BE ADDED
CHUCK SMITH MDP1 8 17 FED COM 26H	30-015-54095	PURPLE SAGE;WOLFCAMP (GAS)	98220	CA PENDING E/2 SEC 8 & 17	TO BE ADDED

PRODUCTION UPLIFT

- Modeled production uplift based on most likely injection scenario.
- Injection duration: 48 months
- Model Assumptions
 - 1500 MSCFPD injection rate
 - 1000 ft of horizontal
 - 50% of Stimulated Reservoir Volume ("SRV") is not flooded.
 - Stage length: 200 ft
 - Cluster spacing: 50 ft
 - Base Production
 - Current: 25 BOPD
 - In 5 years: 15 BOPD
- Incremental Oil Rate, Incremental Gas Rate, and Gas Injection rate over time are plotted on the right.



GAS ACCOUNTING

- Oxy met with BLM on 10/30/2024 to provide an overview of the project and discuss the proposed gas accounting methodology.
 - The IWM pilot project will inject hydrocarbon gas that will result in a production uplift of a depleted well.
 - Oxy proposed royalty-free use of injected, hydrocarbon gas.
 - 100% of the injected gas volumes will be deducted from the production gas volumes before calculating royalty payment.
- BLM verbally approved the proposal during the meeting.
- BLM will provide written approval after a royalty-free sundry is submitted by Oxy.



WELLS IN EXISTING CLGC INJECTION ORDER

- Closed Loop Gas Capture (“CLGC”) pilot project
 - 4 wells are associated with a CLGC pilot project and are active CLGC storage wells.
 - Case 22152
 - Injection Order R-22208

IWM Candidates in existing CLGC Order R-22208

AOR ID	API NUMBER	Current Operator	LEASE NAME	WELL NUMBER
1	30-015-44272	OXY USA INC	PATTON MDP1 18 FEDERAL	005H
★ 2	30-015-44459	OXY USA INC	PATTON MDP1 17 FEDERAL	001H
3	30-015-44333	OXY USA INC	PATTON MDP1 18 FEDERAL	003H
4	30-015-44273	OXY USA INC	PATTON MDP1 18 FEDERAL	007H

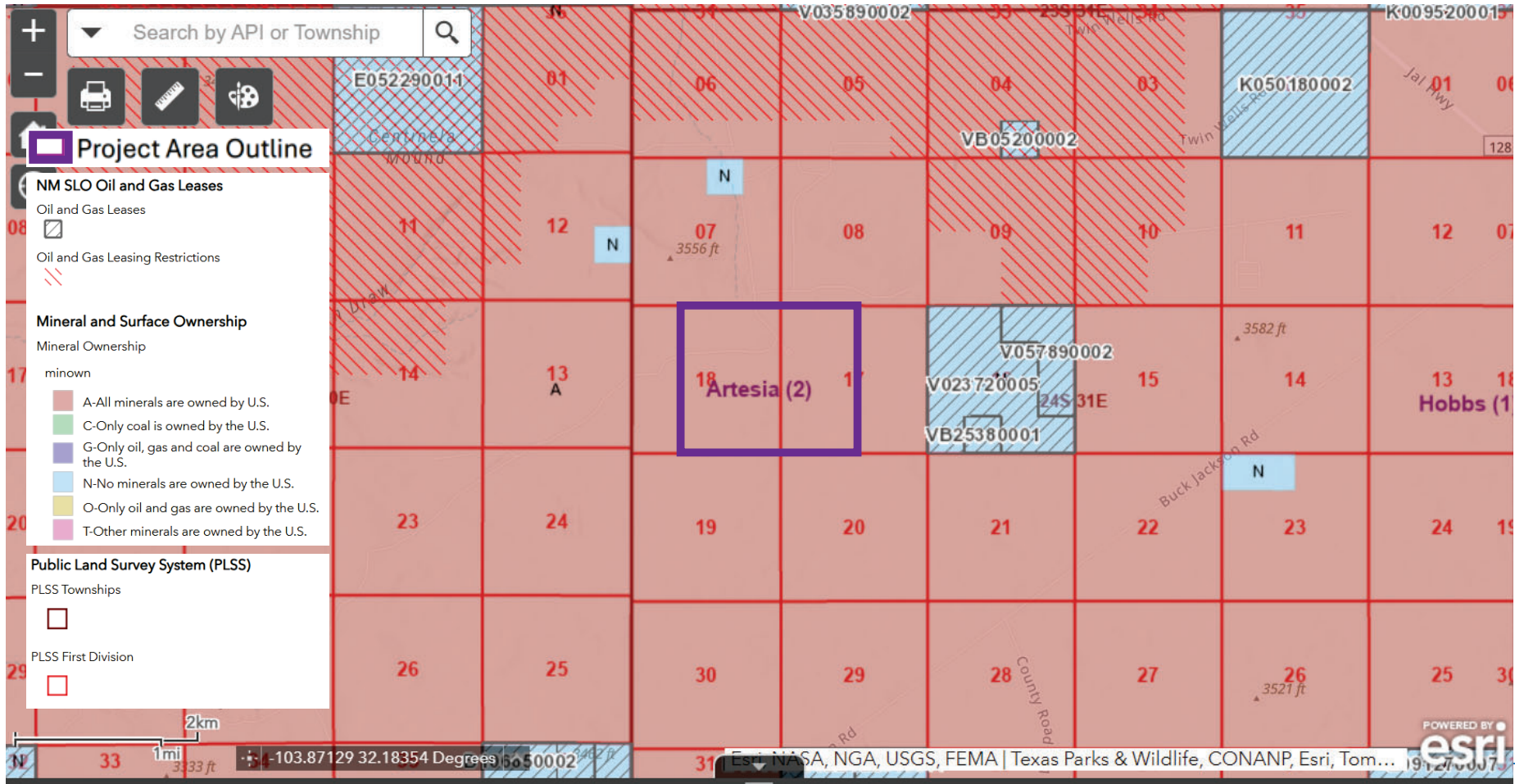
★ Primary Candidate

- After injection commences in the selected IWM candidate well, Oxy proposes to amend order R-22208 with the selected IWM candidate well removed.

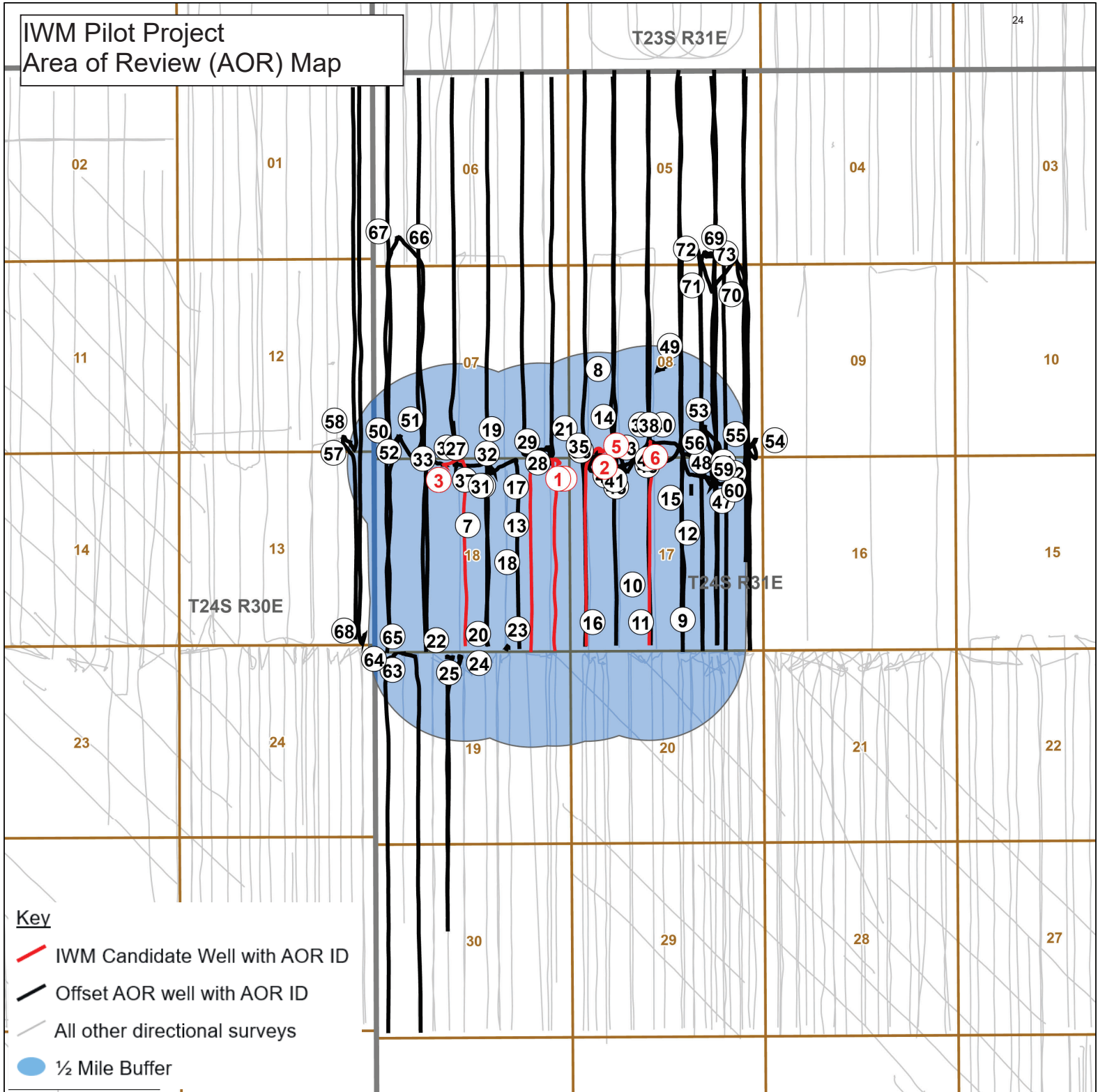


AREA OF REVIEW

2 MILE MAP- MINERAL OWNERSHIP



IWM Pilot Project Area of Review (AOR) Map



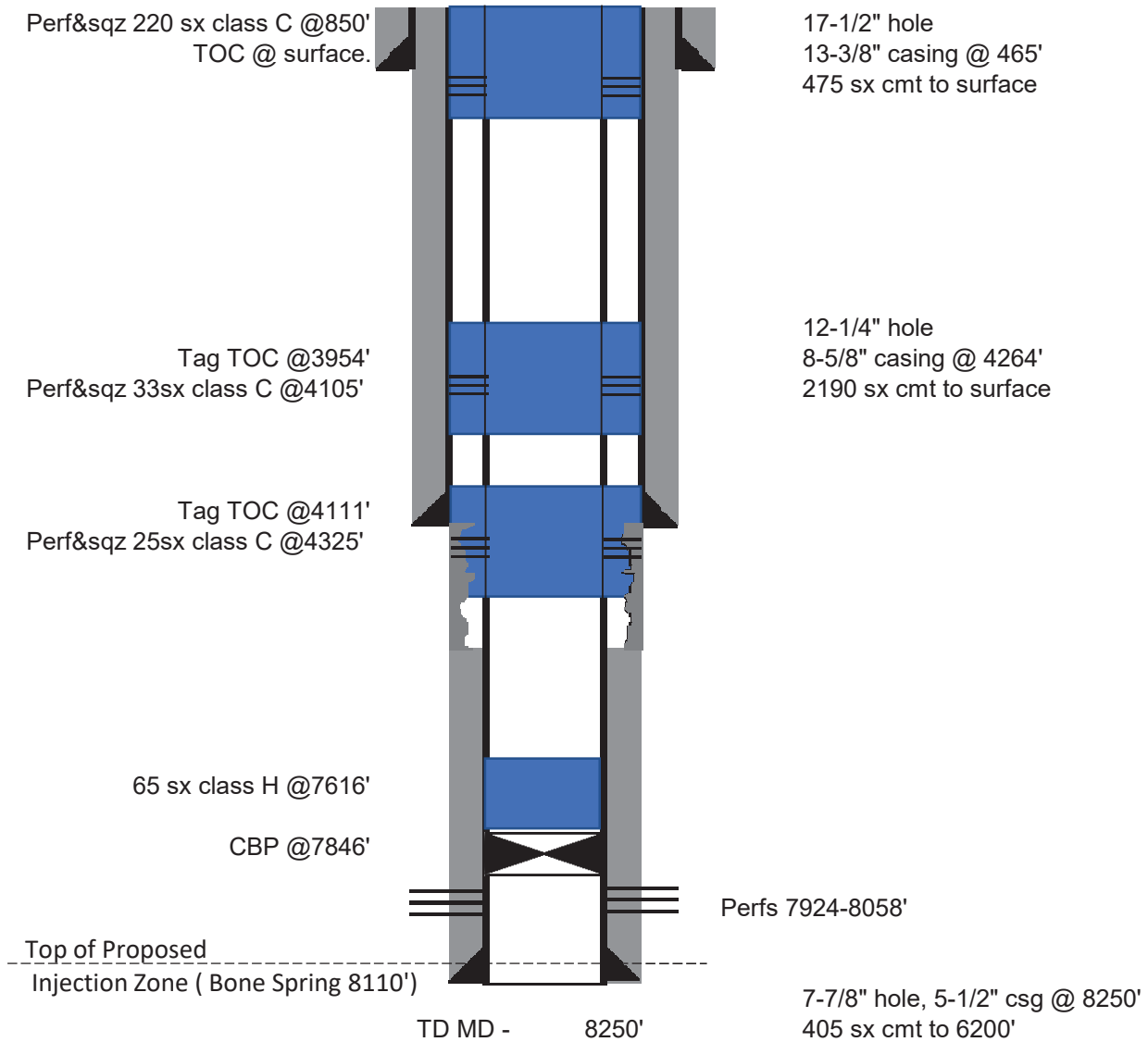
OR Table

AOR ID	API NUMBER	Current Operator	LEASE NAME	WELL NUMB ER	Well Type:	Status:	Footages N/S	N/S	Footages E/W	E/W	Surface Location Unit	Surface Location Section	Surface Location TShip	Surface Location Range	Spud:	True Vertical Depth:	Current Completion	HOLE SIZE	CSG SIZE	SET AT	SK CMT	CMT TO	Top Of Cement How Measured	COMMENT	POOL
1	30-015-44272	OXY USA INC	PATTON MDP1 18 FEDERAL	005H	Oil	Active	150 N		285 E		A	18 24S	31E		8/26/2017	10016	10198-14778	17.500 12.250 8.500	13.375 9.625 5.500	672 4355 15105	947 1970 2220	Surf Circ Surf Circ 1624 CBL	Active CLGC well. Primary candidate.	[13367] COTTON DRAW; BONE SPRING	
2	30-015-44459	OXY USA INC	PATTON MDP1 17 FEDERAL	001H	Oil	Active	170 S		846 W	M	8 24S	31E		11/3/2017	9996	10309-14860	17.500 12.250 8.500	13.375 9.625 5.500	664 4394 15011	850 1380 2165	Surf Circ Surf Circ 516 CBL	Active CLGC well	[13367] COTTON DRAW; BONE SPRING		
3	30-015-44333	OXY USA INC	PATTON MDP1 18 FEDERAL	003H	Oil	Active	170 N		1928 W	C	18 24S	31E		9/7/2017	10010	10114-14620	17.500 12.250 8.500	13.375 9.625 5.500	643 4344 14777	830 1220 2125	Surf Circ Surf Circ 410 CBL	Active CLGC well	[13367] COTTON DRAW; BONE SPRING		
4	30-015-44273	OXY USA INC	PATTON MDP1 18 FEDERAL	007H	Oil	Active	150 N		255 E	A	18 24S	31E		8/29/2017	10018	10156-14737	17.500 12.250 8.500	13.375 9.625 5.500	670 4355 15038	850 1680 2263	Surf Circ 700 Temp Survey 1090 CBL	Active CLGC well	[13367] COTTON DRAW; BONE SPRING		
5	30-015-44460	OXY USA INC	PATTON MDP1 17 FEDERAL	002H	Oil	Active	170 S		906 W	M	8 24S	31E		11/8/2017	9985	10265-14841	17.500 12.250 8.500	13.375 9.625 5.500	671 4410 15150	850 1230 2160	Surf Circ Surf Circ 1964 Echometer		[13367] COTTON DRAW; BONE SPRING		
6	30-015-44496	OXY USA INC	PATTON MDP1 17 FEDERAL	003H	Oil	Active	432 S		2232 W	N	8 24S	31E		11/20/2017	10060	10466-15036	17.500 12.250 8.500	13.375 9.625 5.500	706 4447 15200	870 1235 2175	Surf Circ Surf Circ 1578 Echometer		[13367] COTTON DRAW; BONE SPRING		
7	30-015-27453	EOG RESOURCES INC	POKER LAKE 18 FEDERAL	001	Oil	PA	1980 N		2180 W	F	18 24S	31E		6/5/1993	8250	NA	17.5 12.25 7.875	13.375 8.625 5.500	465 4264 8250	475 2190 405	Surf Circ Surf Circ 6200 CBL		NA		
8	30-015-28654	CHEVRON U S A INC	LOTOS FEDERAL	802	Oil	PA	1980 S		660 W	L	8 24S	31E		2/8/1998	8340	NA	14.75 11 7.875	11.750 8.625 5.500	643 4160 8340	590 1625 1250	Surf Circ Surf Circ 4100 CALC		NA		
9	30-015-29279	OXY USA INC	PATTON 17 FEDERAL	001	Oil	PA	822 S		2581 E	O	17 24S	31E		12/20/1996	8280	NA	17.5 11 7.875	13.375 8.625 5.500	655 3995 8280	900 2108 1630	Surf Circ Surf Circ Surf Circ		NA		
10	30-015-29604	OXY USA INC	PATTON 17 FEDERAL	002	Oil	Active	1650 S		2250 W	K	17 24S	31E		5/8/1997	9700	8122-8161	17.5 11 7.875	13.375 8.625 5.500	668 4275 9700	750 1760 1100	Surf Circ 22 TS 6710 Calc		[50382] POKER LAKE; DELAWARE		
11	30-015-29824	OXY USA INC	PATTON 17 FEDERAL	006	Oil	Active	330 S		1800 W	N	17 24S	31E		10/10/1997	8290	8094-8132	14.75 9.875 6.75	10.750 7.625 4.500	668 4225 8290	650 1678 910	Surf Circ Surf Circ 2120 calc		[50382] POKER LAKE; DELAWARE		
12	30-015-29904	OXY USA INC	PATTON 17 FEDERAL	007	Oil	Active	2075 N		2600 E	G	17 24S	31E		5/23/1998	8320	7974-8150	14.75 9.875 6.34	10.750 7.625 4.500	635 4250 8320	600 1090 1135	Surf Circ Surf Circ 3375 calc		[50382] POKER LAKE; DELAWARE		
13	30-015-32435	OXY USA INC	PATTON 18 FEDERAL	001	Gas	Active	1980 N		1980 E	G	18 24S	31E		9/20/2003	13223	7868-8060	17.500 11.000 7.875	13.375 8.625 5.500	758 4175 11770	1050 1550 1520	Surf Circ Surf Circ 4218 TS		[50382] POKER LAKE; DELAWARE		
14	30-015-32775	OXY USA INC	SUNDANCE 8 FEDERAL	003Q	Oil	Active	660 S		660 W	M	8 24S	31E		5/19/2003	8350	7904-8084	17.5 11 7.875	13.375 8.625 5.5	1010 4218 8350	1010 4218 8350	Surf Circ Surf Circ Surf cbl		[53818] SAND DUNES; DELAWARE, SOUTH		
15	30-015-33013	OXY USA INC	PATTON 17 FEDERAL	012Z	Oil	Active	990 N		1980 E	B	17 24S	31E		9/28/2004	8380	9746-8162	17.500 11.000 7.875	13.375 8.625 5.500	960 4261 8380	760 1750 1755	Surf Circ Surf Circ Surf cbl		[50382] POKER LAKE; DELAWARE		
16	30-015-33034	OXY USA INC	PATTON 17 FEDERAL	009T	Oil	PA	330 S		330 W	M	17 24S	31E		10/17/2004	8375	NA	17.500 11.000 7.875	13.375 8.625 5.500	1005 4215 8375	800 1500 1550	Surf Circ Surf Circ 600 CBL		NA		
17	30-015-33451	OXY USA INC	PATTON 18 FEDERAL	003	Oil	Active	660 N		1980 E	B	18 24S	31E		9/8/2004	8270	7950-8047	17.500 11.000 7.875	13.375 8.625 5.500	900 4170 8270	1150 1450 1570	Surf Circ Surf Circ Surf cbl		[96046] POKER LAKE; DELAWARE, NORTHWEST		
18	30-015-33710	OXY USA INC	PATTON 18 FEDERAL	004	Oil	Active	1980 S		1980 E	J	18 24S	31E		11/29/2004	8300	7944-8042	17.500 11.000 7.875	13.375 8.625 5.500	965 4207 8300	975 1350 1480	Surf Circ Surf Circ 4590 cbl		[50382] POKER LAKE; DELAWARE		
19	30-015-33732	OXY USA INC	PALLADIUM 7 FEDERAL	009	Oil	PA	330 S		1980 E	O	7 24S	31E		1/10/2005	8308	NA	17.500 11.000 7.875	13.375 8.625 5.500	1007 4193 8308	1000 1300 1975	Surf Circ Surf Circ Surf Circ		NA		
20	30-015-33825	OXY USA INC	PATTON 18 FEDERAL	006	Oil	Active	330 S		2310 W	N	18 24S	31E		1/29/2005	8275	7872-8050	17.500 11.000 7.875	13.375 8.625 5.500	935 4200 8275	800 1225 1250	Surf Circ Surf Circ 3000 cbl		[96046] POKER LAKE; DELAWARE, NORTHWEST		
21	30-015-33890	OXY USA INC	PALLADIUM 7 FEDERAL	006Q	Oil	PA	660 S		660 E	P	7 24S	31E		10/29/2005	8400	NA	17.500 11.000 7.875	13.375 8.625 5.500	995 4165 8400	950 1500 1625	Surf Circ Surf Circ Surf Circ		NA		
22	30-015-40261	XTO PERMIAN OPERATING LLC.	POKER LAKE CVX JV BS FEDERAL COM	014H	Oil	Active	140 N		1980 W	C	19 24S	31E		5/17/2012	9550	9843-14121	17.500 11.000 7.875	13.375 8.625 5.500	713 4173 14240	1000 2000 2000	Surf Circ Surf Circ 3650 calc		[97975] WC-015 G-06 S243119C; BONE SPRING		
23	30-015-41343	OXY USA INC	PATTON 18 FEDERAL	008H	Oil	Active	150 S		1700 E	O	18 24S	31E		7/22/2013	10011	10464-14320	14.750 10.625 7.875	11.750 8.625 5.500	930 4207 14460	650 2150 2100	Surf Circ Surf Circ Surf Circ		[13367] COTTON DRAW; BONE SPRING		
24	30-015-42427	XTO PERMIAN OPERATING LLC.	POKER LAKE UNIT CVX JV BS	035H	Oil	Active	190 N		2332 W	C	19 24S	31E		9/23/2014	10230	10560-17222	17.5 12.25 8.75	13.375 9.625 5.5	903 4290 17248	740 1230 3335	Surf Circ Surf Circ 4118 CBL		[97975] WC-015 G-06 S243119C; BONE SPRING		
25	30-015-42428	XTO PERMIAN OPERATING LLC.	POKER LAKE UNIT CVX JV BS	036H	Oil	Active	2323 N		1985 W	C	19 24S	31E		9/21/2014	10785	10721-17549	17.500 12.250 8.750 5.500	13.375 9.625 5.500	895 4290 17915 17820	755 4290 3495 485	Surf Circ Surf Circ 3850 CBL 9722 CBL		[97975] WC-015 G-06 S243119C; BONE SPRING		
26	30-015-43854	OXY USA INC	PATTON MDP1 18 FEDERAL	006H	Gas	Active	150 N		505 E	A	18 24S	31E		8/15/2016	11613	11759-16145	20.000 13.500 9.875 6.750	16.000 10.750 7.625 5.5 x 4.5	700 4290 11972 16359	800 1835 2400 540	Surf Circ Surf Circ Surf Circ 10828 calc	4.5" liner top at 10828'	[98220] PURPLE SAGE; WOLFCAMP (GAS)		
27	30-015-44292	OXY USA INC	PALLADIUM MDP1 7 6 FEDERAL COM	003H	Oil	PA	169 N		2255 W	C	18 24S	31E		8/22/2017	10895	NA	17.5 12.25 8.5	13.375 9.625 NA	654 4351 NA	850 1672 NA	Surf Circ Surf Circ NA NA		NA		
28	30-015-44293	OXY USA INC	PALLADIUM MDP1 7 6 FEDERAL COM	006H	Oil	Active	293 S		562 E	P	7 24S	31E		8/15/2017	10059	10058-19910	17.500 12.250 8.500	13.375 9.625 5.500	672 4374 20075	856 1625 3015	Surf Circ Surf Circ Surf Circ		[13367] COTTON DRAW; BONE SPRING		
29	30-015-44294	OXY USA INC	PALLADIUM MDP1 7 6 FEDERAL COM	005H	Oil	Active	293 S		592 E	P	7 24S	31E		8/13/2017	10064	10094-19979	17.500 12.250 8.500	13.375 9.625 5.500	671 4372 20278	865 1330 2955	Surf Circ Surf Circ 1565 cbl		[13367] COTTON DRAW; BONE SPRING		
30	30-015-44295	OXY USA INC	PALLADIUM MDP1 7 6 FEDERAL COM	004H	Oil	Active	169 N		2285 W	C	18 24S	31E		8/24/2017	10034	10251-19963	17.500 12.250 8.500	13.375 9.625 5.500	641 4348 20273	850 1458 3958	Surf Circ Surf Circ 1678 Fluid Shot (FS)		[13367] COTTON DRAW; BONE SPRING		
31	30-015-44316	OXY USA INC	PATTON MDP1 18 FEDERAL	023H	Oil	Active	335 N		2122 E	B	18 24S	31E		8/12/2017	10286	10613-14721	17.500	13.375	655	650	Surf Circ	Permitted CLGC well	[13367] COTTON DRAW; BONE SPRING		

												12.250	9.625	4380	1350	Surf Circ					
												8.500	5.500	14911	1650	Surf Circ			3830 Calc		
32	30-015-44318	OXY USA INC	PATTON MDP1 18 FEDERAL	073H	Oil	Active	335 N	2092 E	B	18 245	31E	8/14/2017	11193	11169-15639	20000	16000	660	765	Surf Circ	4.5" liner 10369-15810. 5.5" tie back	[13367] COTTON DRAW; BONE SPRING
												13.500	10.750	4358	1615	Surf Circ					
												9.875	7.625	10503	1070	Surf Circ					
												6.750	5.5 x 4.500	15810	560	Surf Circ					10369 Circ
33	30-015-44337	OXY USA INC	PATTON MDP1 18 FEDERAL	002H	Oil	Active	170 N	1898 W	C	18 245	31E	9/6/2017	10084	10159-14663	17500	13375	644	830	Surf Circ	Permitted CLGC well	[13367] COTTON DRAW; BONE SPRING
												12.250	9.625	4343	1215	Surf Circ					
												8.500	5.500	14802	2130	Surf Circ					968 FS
												6.750	5.5 x 4.500	15810	560	Surf Circ					10369 Circ
34	30-015-44338	OXY USA INC	PATTON MDP1 18 FEDERAL	033H	Oil	Active	335 N	2062 E	B	18 245	31E	8/15/2017	8878	9060-13553	17500	13375	656	650	Surf Circ	Permitted CLGC well	[13367] COTTON DRAW; BONE SPRING
												12.250	9.625	4365	1350	Surf Circ					
												8.500	5.500	13770	1480	Surf Circ					1300 Calc
35	30-015-44369	OXY USA INC	SUNRISE MDP1 8 5 FEDERAL COM	001H	Oil	Active	170 S	816 W	M	8 245	31E	11/2/2017	9941	10370-20250	17500	13375	671	815	Surf Circ	[13367] COTTON DRAW; BONE SPRING	
												12.250	9.625	4418	1230	Surf Circ					
												8.500	5.500	20389	2940	Surf Circ					1644 CBL
36	30-015-44395	OXY USA INC	SUNRISE MDP1 8 5 FEDERAL COM	002H	Oil	Active	170 S	876 W	M	8 245	31E	11/6/2017	9990	10299-20156	17500	13375	669	850	Surf Circ	[13367] COTTON DRAW; BONE SPRING	
												12.250	9.625	4418	1228	Surf Circ					
												8.500	5.500	20320	2935	Surf Circ					574 CBL
37	30-015-44457	OXY USA INC	PALLADIUM MDP1 7 6 FEDERAL COM	003Y	Oil	Active	169 N	2225 W	C	18 245	31E	10/8/2017	10001	10092-19929	17500	13375	655	820	Surf Circ	[13367] COTTON DRAW; BONE SPRING	
												12.250	9.625	4352	1536	Surf Circ					
												8.500	5.500	20102	3693	Surf Circ					799 FS
38	30-015-44474	OXY USA INC	SUNRISE MDP1 8 5 FEDERAL COM	003H	Oil	Active	432 S	2202 W	N	8 245	31E	11/17/2017	10050	10591-20485	17500	13375	708	895	Surf Circ	[13367] COTTON DRAW; BONE SPRING	
												12.250	9.625	4438	1235	Surf Circ					
												8.500	5.500	20610	2909	Surf Circ					1330 CBL
39	30-015-44475	OXY USA INC	SUNRISE MDP1 8 5 FEDERAL COM	004H	Oil	Active	432 S	2262 W	N	8 245	31E	11/22/2017	10059	10406-20250	17500	13375	713	915	Surf Circ	[13367] COTTON DRAW; BONE SPRING	
												12.250	9.625	4431	1235	Surf Circ					
												8.500	5.500	20388	2900	Surf Circ					2120 CBL
40	30-015-44497	OXY USA INC	PATTON MDP1 17 FEDERAL	004H	Oil	Active	432 S	2292 W	N	8 245	31E	11/24/2017	10063	10674-15244	17500	13375	704	915	Surf Circ	Permitted CLGC well	[13367] COTTON DRAW; BONE SPRING
												12.250	9.625	4444	1235	Surf Circ					
												8.500	5.500	15379	2175	Surf Circ					1755 FS
41	30-015-44930	OXY USA INC	SUNRISE MDP1 8 5 FEDERAL COM	171H	Gas	Active	194 N	1544 W	C	17 245	31E	2/4/2019	11603	11906-22195	14750	10750	678	745	Surf Circ	[98220] PURPLE SAGE; WOLFCAMP (GAS)	
												9.875	7.625	11006	2139	Surf Circ					
												6.750	5.500	22315	800	Surf Circ					10500 Calc
42	30-015-44931	OXY USA INC	SUNRISE MDP1 8 5 FEDERAL COM	173H	Gas	Active	194 N	1614 W	C	17 245	31E	2/6/2019	11604	11725-21589	14750	10750	690	745	Surf Circ	[98220] PURPLE SAGE; WOLFCAMP (GAS)	
												9.875	7.625	11067	1899	Surf Circ					
												6.750	5.500	21705	775	Surf Circ					10550 Calc
43	30-015-44977	OXY USA INC	SUNRISE MDP1 8 5 FEDERAL COM	172H	Gas	Active	194 N	1579 W	C	17 245	31E	2/4/2019	11751	12044-22159	14750	10750	690	745	Surf Circ	[98220] PURPLE SAGE; WOLFCAMP (GAS)	
												9.875	7.625	11067	1899	Surf Circ					
												6.750	5.5	21705	775	Surf Circ					10550 Calc
44	30-015-44989	OXY USA INC	PATTON MDP1 17 FEDERAL	171H	Gas	Active	374 N	1545 W	C	17 245	31E	7/4/2018	11702	12213-16688	14750	10750	704	680	Surf Circ	[98220] PURPLE SAGE; WOLFCAMP (GAS)	
												9.875	7.625	11242	2045	Surf Circ					
												6.750	5.5 x 4.5	16858	675	Surf Circ					5310 CBL
45	30-015-44990	OXY USA INC	PATTON MDP1 17 FEDERAL	172H	Gas	Active	374 N	1580 W	C	17 245	31E	7/5/2018	11801	11956-16506	14750	10750	725	680	Surf Circ	[98220] PURPLE SAGE; WOLFCAMP (GAS)	
												9.875	7.625	11084	2410	Surf Circ					
												6.750	5.5 x 4.5	16651	675	Surf Circ					6500 CBL
46	30-015-44991	OXY USA INC	PATTON MDP1 17 FEDERAL	173H	Gas	Active	374 N	1615 W	C	17 245	31E	7/6/2018	11815	12034-16584	14750	10750	735	700	Surf Circ	[98220] PURPLE SAGE; WOLFCAMP (GAS)	
												9.875	7.625	11304	2310	Surf Circ					
												6.750	5.5 x 4.5	16749	675	Surf Circ					6234 CBL
47	30-015-45077	OXY USA INC	PATTON MDP1 17 FEDERAL	174H	Gas	Active	772 N	1367 E	B	17 245	31E	7/18/2018	11876	12042-16593	14750	10750	762	985	Surf Circ	[98220] PURPLE SAGE; WOLFCAMP (GAS)	
												9.875	7.625	11334	2320	Surf Circ					
												6.750	5.5 x 4.5	16758	675	Surf Circ					9865 CBL
48	30-015-45112	OXY USA INC	SUNRISE MDP1 8 5 FEDERAL COM	174H	Gas	Active	592 N	1369 E	B	17 245	31E	1/31/2019	11773	12115-22448	14750	10750	740	845	Surf Circ	[98220] PURPLE SAGE; WOLFCAMP (GAS)	
												9.875	7.625	11215	1990	Surf Circ					
												6.750	5.500	22543	825	Surf Circ					
49	30-015-44131	NGL WATER SOLUTIONS PERMIANSAND DUNES SWD		002	SWD	Active	2600 S	2500 W	K	8 245	31E	5/2/2017	17920	16547-17920	26000	20000	822	1142	Surf Circ	[96101] SWD; DEVONIAN	
												17500	13375	4250	2315	Surf Circ					
												12.250	9.625	11698	2650	Surf Circ					
												8.500	7.625	11215-16547	375	Surf Circ					11215 Circ
50	30-015-44298	OXY USA INC	PALLADIUM MDP1 7 6 FEDERAL COM	001H	Oil	Active	609 S	682 W	M	7 245	31E	10/16/2017	10050	9756-19720	17500	13375	657	845	Surf Circ	[13367] COTTON DRAW; BONE SPRING	
												12.250	9.625	4326	1446	Surf Circ					
												8.500	5.500	19874	3893	Surf Circ					550 FS
51	30-015-44299	OXY USA INC	PALLADIUM MDP1 7 6 FEDERAL COM	002H	Oil	Active	609 S	742 W	M	7 245	31E	10/10/2017	10033	10053-19769	17500	13375	661	845	Surf Circ	[13367] COTTON DRAW; BONE SPRING	
												12.250	9.625	4304	1519	Surf Circ					
												8.500	5.500	20070	3767	Surf Circ					206 FS
52	30-015-44317	OXY USA INC	PATTON MDP1 18 FEDERAL	001H	Oil	Active	609 S	712 W	M	7 245	31E	10/18/2017	10055	10272-14723	17500	13375	632	815	Surf Circ	Permitted CLGC well	[13367] COTTON DRAW; BONE SPRING
												12.250	9.625	4306	1446	Surf Circ					
												8.500	5.500	14865	2759	Surf Circ					430 FS
53	30-015-44444	OXY USA INC	PATTON MDP1 17 FEDERAL	00																	

62	30-015-45153	OXY USA INC	SUNRISE MDP1 8 5 FEDERAL COM	176H	Gas	Active	592 N	1299 E	A	17 245	31E	2/2/2019	11761	12079-22411	14.750 9.875 6.750	10.750 7.625 5.500	730 11225 22452	845 2065 820	Surf Circ Surf Circ 10725 Calc	[98220] PURPLE SAGE; WOLFCAMP (GAS)
63	30-015-46426	XTO PERMIAN OPERATING LLC.	POKER LAKE UNIT 18 TWR	102H	Gas	Active	207 N	748 W	D	19 245	31E	2/22/2020	12590	11932-21474	14.750 10.625 7.875	11.750 8.625 5.500	834 10795 21630	805 1355 2875	Surf Circ Surf Circ Surf Circ	[98220] PURPLE SAGE; WOLFCAMP (GAS)
64	30-015-46427	XTO PERMIAN OPERATING LLC.	POKER LAKE UNIT 18 TWR	121H	Gas	Active	75 N	535 W	D	19 245	31E	2/25/2020	11780	12142-21506	17.500 12.250 8.5	13.375 9.625 5.500	915 10885 21658	482 1579 2321	Surf Circ Surf Circ 10360 Calc	[98220] PURPLE SAGE; WOLFCAMP (GAS)
65	30-015-46428	XTO PERMIAN OPERATING LLC.	POKER LAKE UNIT 18 TWR	122H	Gas	Active	40 N	785 W	D	19 245	31E	2/24/2020	11740	12174-21538	14.750 10.625 7.875	11.750 8.625 5.500	850 10937 21695	850 1355 3685	Surf Circ Surf Circ Surf Circ	[98220] PURPLE SAGE; WOLFCAMP (GAS)
66	30-015-47249	OXY USA INC	JEFF SMITH MDP1 7 18 FEDERAL COM	172H	Gas	Active	779 S	740 W	M	6 245	31E	4/19/2022	11555	11727-21788	14.75 9.875 6.75	10.750 7.625 5.500	835 11015 22103	1160 2325 842	Surf Circ Surf Circ 10515 Calc	[98220] PURPLE SAGE; WOLFCAMP (GAS)
67	30-015-47258	OXY USA INC	JEFF SMITH MDP1 7 18 FEDERAL COM	171H	Gas	Active	779 S	705 W	M	6 245	31E	4/18/2022	11666	12063-22364	14.75 9.875 6.75	10.750 7.625 5.500	845 10490 22480	900 2427 961	Surf Circ Surf Circ 9490 Calc	[98220] PURPLE SAGE; WOLFCAMP (GAS)
68	30-015-53777	OXY USA INC	NIMITZ MDP1 13 1 FEDERAL COM	175H	Gas	Active	230 S	280 E	P	13 245	30E	8/16/2023	11573	11599-26882	14.75 9.875 6.75	10.750 7.625 5.500	815 10742 27003	800 2180 1298	Surf Circ Surf Circ 6394 Calc	[98220] PURPLE SAGE; WOLFCAMP (GAS)
69	30-015-54047	OXY USA INC	CHUCK SMITH MDP1 8 17 FEDERAL COM 024H	024H	Gas	Active	279 S	1550 E	O	5 245	31E	9/2/2023	12573	12600-22866	17.5 12.25 8.75 x 8.5	13.375 9.625 7 x 5.5	830 11813 22988	1035 2127 2496	Surf Circ Surf Circ 8040 Calc	[98220] PURPLE SAGE; WOLFCAMP (GAS)
70	30-015-54050	OXY USA INC	CHUCK SMITH MDP1 8 17 FEDERAL COM 005H	005H	Oil	Active	701 N	1335 E	B	8 245	31E	10/13/2023	10819	11092-21190	14.75 9.875 6.75	10.750 7.625 5.500	811 10564 21308	790 2490 851	Surf Circ Surf Circ 8720 Calc	[13367] COTTON DRAW; BONE SPRING
71	30-015-54092	OXY USA INC	CHUCK SMITH MDP1 8 17 FEDERAL COM 004H	004H	Oil	Active	731 N	1335 E	B	8 245	31E	10/12/2023	10783	11082-21180	14.75 9.875 6.75	10.750 7.625 5.500	823 10525 21302	820 2348 1051	Surf Circ Surf Circ 6590 Calc	[13367] COTTON DRAW; BONE SPRING
72	30-015-54094	OXY USA INC	CHUCK SMITH MDP1 8 17 FEDERAL COM 025H	025H	Gas	Active	279 S	1520 E	O	5 245	31E	9/3/2023	12344	12579-22673	14.75 9.875 8.75 x 8.5	13.375 9.625 7 x 5.5	796 11700 22810	1005 3774 2375	Surf Circ Surf Circ 9336 Calc	[98220] PURPLE SAGE; WOLFCAMP (GAS)
73	30-015-54095	OXY USA INC	CHUCK SMITH MDP1 8 17 FEDERAL COM 026H	026H	Oil	Active	279 S	1490 E	O	5 245	31E	9/5/2023	12560	12740-22965	17.5 12.25 8.75 x 8.5	13.375 9.625 7 x 5.5	793 11840 23082	995 3860 2535	Surf Circ Surf Circ 7850 Calc	[98220] PURPLE SAGE; WOLFCAMP (GAS)

EOG RESOURCES INC
POKER LAKE 18 FEDERAL 001
30-015-27453



*not to scale

P&A WBD

LOTOS C FEDERAL #802

Well #:	<u>802</u>	St. Lse:	<u> </u>	API	<u>30-015-28654</u>
Lease:	<u>LOTOS FEDERAL</u>			Unit Ltr.:	<u> </u> Section: <u>8</u>
Field:	<u>SAND DUNES SOUTH</u>			TSHR/Rng:	<u>24S-31E</u>
Surf. Loc.:	<u>1980' FSL & 660' FWL</u>			Unit Ltr.:	<u> </u> Section: <u> </u>
Bot. Loc.:	<u> </u>				
County:	<u>Eddy</u>	St.:	<u>NM</u>	Directions:	<u> </u>
Status:	<u> </u>			Chevno:	<u> </u>

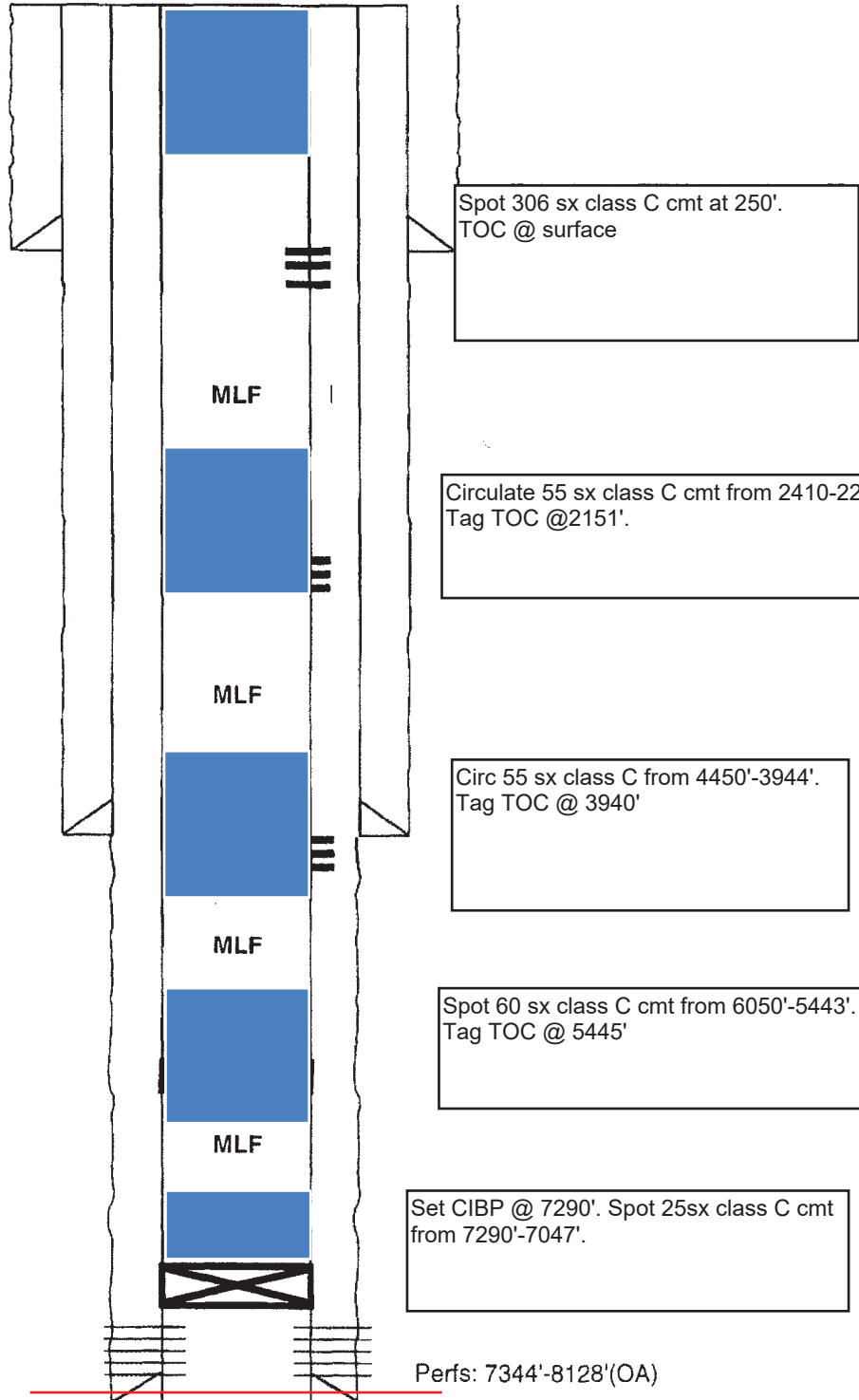
Surface Casing

Size:	<u>11-3/4"</u>
Wt., Grd.:	<u>42#</u>
Depth:	<u>643'</u>
Sxs Cmt:	<u>590</u>
Circulate:	<u>Yes</u>
TOC:	<u>Surface</u>
Hole Size:	<u>14-3/4"</u>

Intermediate Casing

Size:	<u>8 5/8"</u>
Wt., Grd.:	<u>24#</u>
Depth:	<u>4160'</u>
Sxs Cmt:	<u>1625</u>
Circulate:	<u>Yes</u>
TOC:	<u>Surface</u>
Hole Size:	<u>11"</u>

Size:	<u>5 1/2"</u>
Wt., Grd.:	<u>17#</u>
Depth:	<u>8340'</u>
Sxs Cmt:	<u>1250</u>
TOC:	<u>4100' est.</u>
Hole Size:	<u>7 7/8"</u>



Spot 306 sx class C cmt at 250'.
TOC @ surface

Circulate 55 sx class C cmt from 2410-2210'.
Tag TOC @ 2151'.

Circ 55 sx class C from 4450'-3944'.
Tag TOC @ 3940'

Spot 60 sx class C cmt from 6050'-5443'.
Tag TOC @ 5445'

Set CIBP @ 7290'. Spot 25sx class C cmt
from 7290'-7047'.

Perfs: 7344'-8128'(OA)

Top of proposed injection interval
BS top 8178'

PBTD: 8250'
TD: 8340'

Final Wellbore Diagram 1/6/2023

Patton 17 Federal #001
 30-015-29279-0000
 Eddy

String 1
 OD 13.375 in
 TD 655 ft
 TOC 0 ft

17.5" Drilled Hole

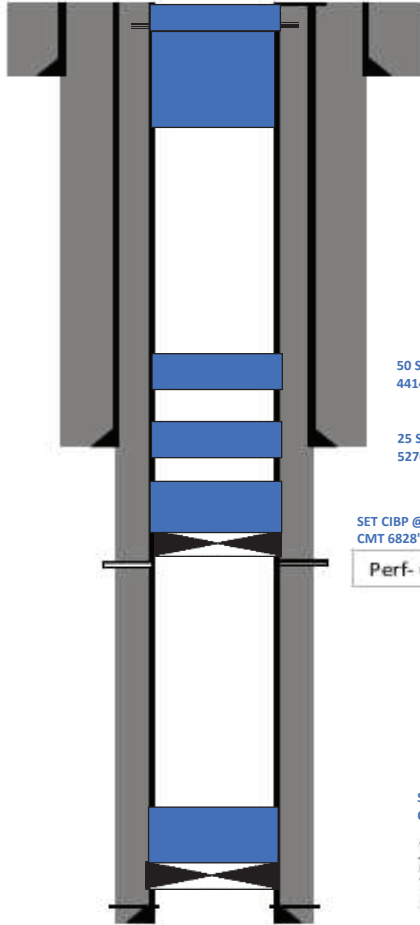
String 2
 OD 8.625 in
 TD 3995 ft
 TOC 0 ft

11" Drilled Hole

String 3
 OD 5.5 in
 TD 8280 ft
 TOC 0 ft
 PBTD 8280 ft

7.875" Drilled Hole

Prod Zone
 8128 ft
 8144 ft



PERF @ 60'. Sqz 25 SX CL C CMT 60'-0'. (Circulated)

70 SX CL C CMT Balanced Plug from 705'-65' (TAG).

50 SX CL C CMT Balanced Plug from 4414'-3940' (TAG).

25 SX CL C CMT Balanced Plug from 5270'-5018' (TAG).

SET CIBP @ 6828'. Spot 45 SX CL C CMT 6828'-6363' (TAG).

Perf- 6878'-6886'

SET CIBP @ 8082'. Spot 35 SX CL H CMT 8082'-7681' (TAG).

Tubing Assembly
 OD 2.875 in
 Top 14 ft
 Bot 8183 ft

OXY USA Inc
Patton 17 Federal #9
API No. 30-015-33034

Spot 85sx class C cmt to surface

Spot 40sx class C cmt @1120'.
Tag @ 818'

Spot 40sx class C cmt @3822'.
Tag @ 3482'

Spot 40sx class C cmt @4349'.
Tag @ 3959'

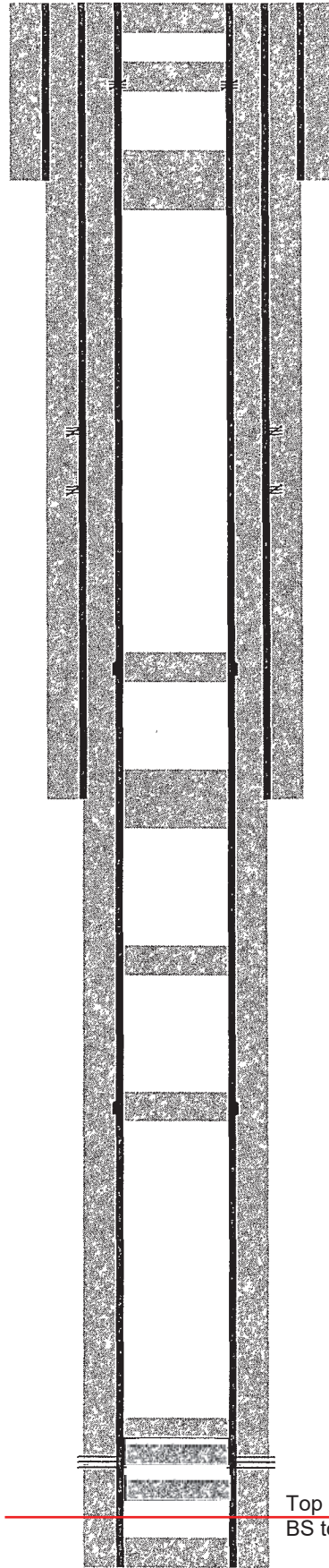
Spot 40 sx class C cmt @ 5304'.
TOC @4951'

Spot 40 sx class C cmt @6095'.
Tag @5748'

Pump 35 sx class H cmt. Tag @7822'
Pump 25 sx class H cmt. Tag @8007'

Pump 80 sx class H cmt. Tag @ 8021'

PB-8311'



Perf @ 550'

17-1/2" hole @ 1005'
13-3/8" csg @ 1005'
w/ 800sx-TOC-Surf-Circ

*Perf @ 2400'sqz 850sx to Surface

*Perf @ 2690',sqz 200sx to 2560'

11" hole @ 4215'
8-5/8" csg @ 4215'
w/ 1500sx-TOC-*2780'-TS

7-7/8" hole @ 8375'
5-1/2" csg @ 8375'
DVT @ 5994' 3725'
1st w/ 750sx-TOC-5989'-Circ
2nd w/ 600sx-TOC-3720'-Circ
3rd w/ 200sx-TOC-600'-CBL

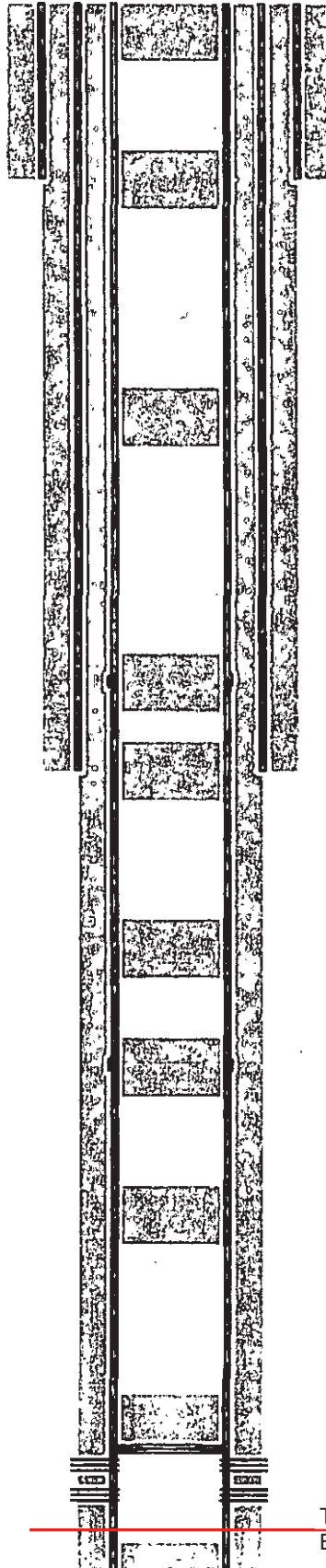
Perfs @ 7964-8064'

Top of proposed injection interval
BS top 8134'

TD-8375'

OXY USA Inc.
Palladium 7 Federal #9
API No. 30-015-33732

Perf @ 250'. Squeeze 40sx class
C cmt to surface



17-1/2" hole @ 1007'
13-3/8" csg @ 1007'
w/ 1000sx-TOC-Surf-Circ

25 sx @1032'. Tag TOC @853'

TOS 945
Del 4285
BS 8106

25 sx @2398'. Tag TOC @2132'

25 sx @3772'. Tag TOC @3532'

Packer @3770'
Perf @4185'
Squeeze 25sx class C @4264'.
Tag TOC @4002'.

11" hole @ 4193'
8-5/8" csg @ 4193'
w/ 1300sx-TOC-Surf-Circ

25 sx @5248'. Tag TOC @4953'

25 sx @5904'. Tag TOC @5692'

25 sx @6593'. Tag TOC @6351'

CIBP @ 7878' w/ 25sx
Tag TOC @ 7680'

7-7/8" hole @ 8308'
5-1/2" csg @ 8308'
w/ 1975sx-TOC-Surf-Circ
DVT @ 3694', 5823'

Perfs @ 7928-8052'

Top of proposed injection interval
BS top 8106'

PB-8204'

TD-8308'

Stephen Janacek

7/14/2020

PALLADIUM 7 FEDERAL #006Q

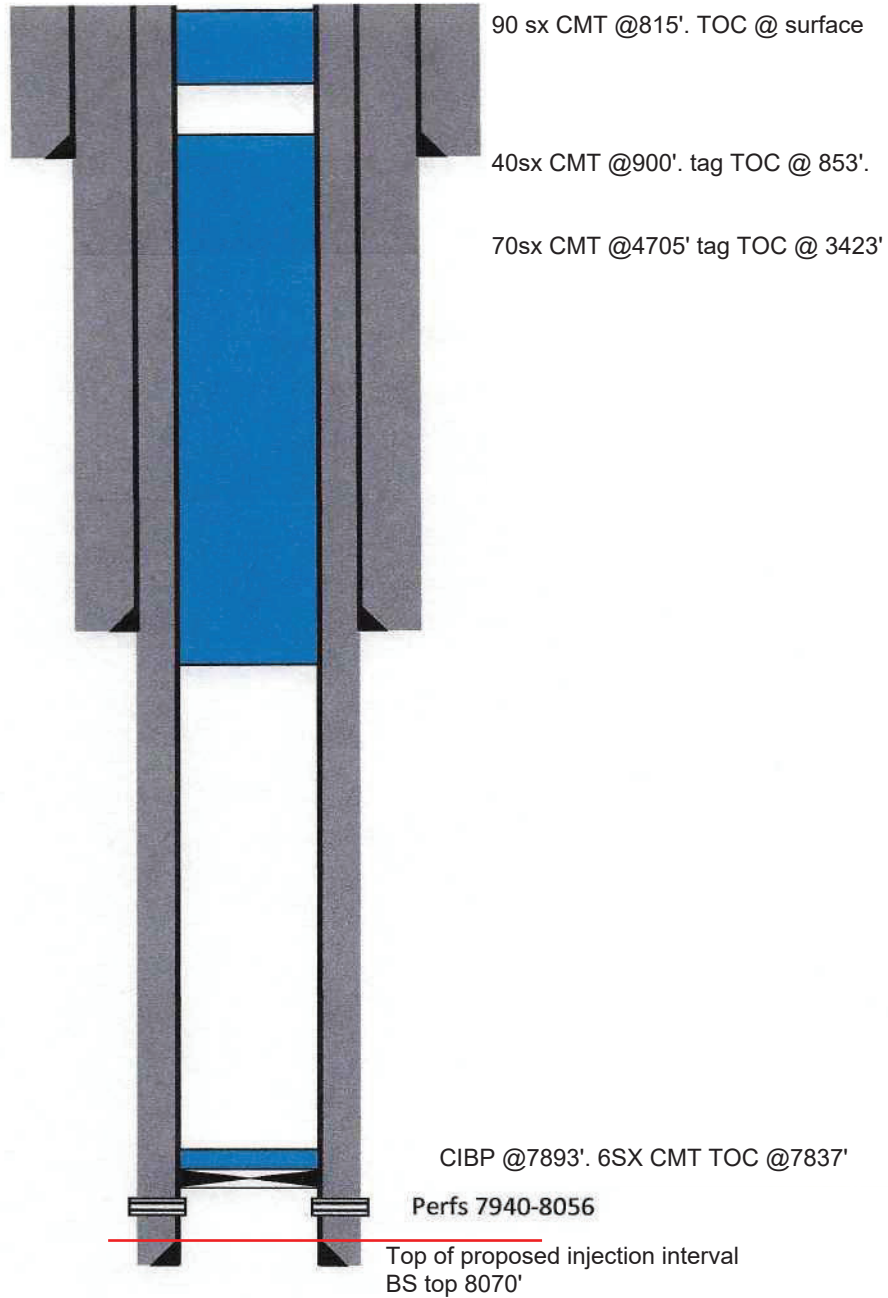
30-015-33890-0000

Eddy

String 1
OD 13.375 in
TD 995 ft
TOC 0 ft

String 2
OD 8.625 in
TD 4165 ft
TOC 0 ft

String 3
OD 5.5 in
TD 8400 ft
TOC 0 ft
PBSD 8400 ft



4/7/2021

Current Wellbore

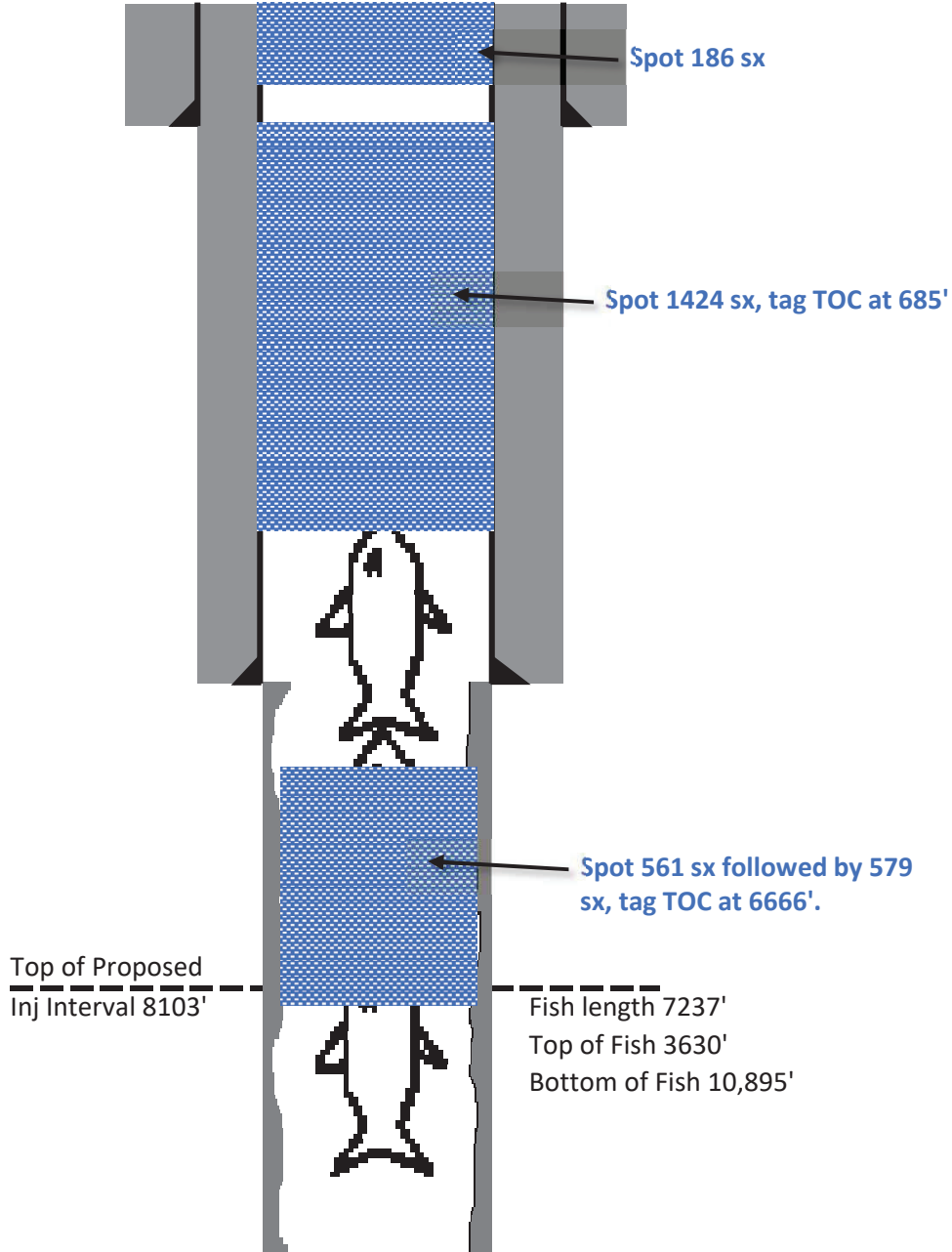
PALLADIUM MDP1-7-6 FEDERAL COM3H

30-015-44292-0000

Eddy

String 1
OD 13.375 in
TD 654 ft
TOC 0 ft

String 2
OD 9.625 in
TD 4351 ft
TOC 0 ft



8.5" OH
TD 10895 ft



OPERATIONS

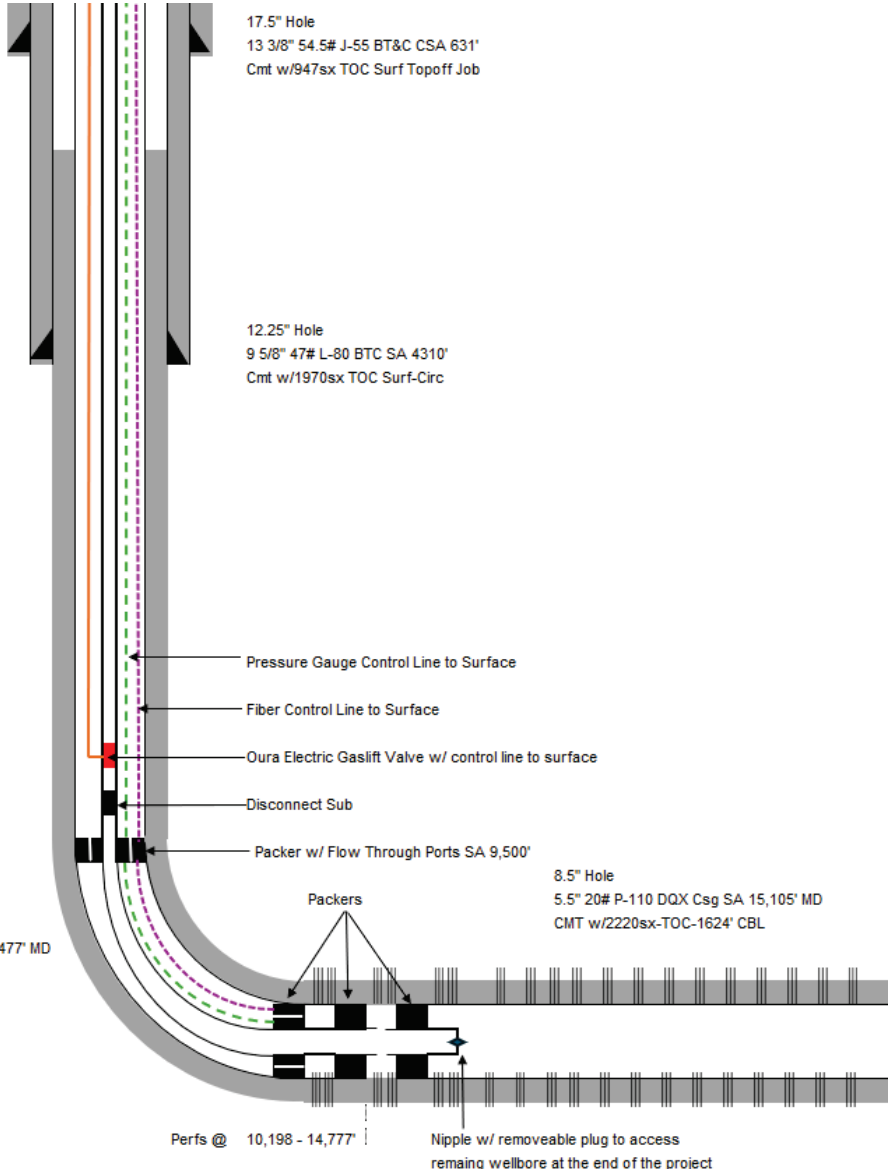
INJECTION WELL DATA SHEET

OPERATOR: Oxy USA Inc.

WELL NAME & NUMBER: Patton MDP1 18 Federal 5H API 30-015-44272

WELL LOCATION: NENE 150 FNL 285 FEL A 18 T24S R31E
 FOOTAGE LOCATION UNIT LETTER SECTION TOWNSHIP RANGE

WELLBORE SCHEMATIC



WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 17.5" Casing Size: 13.375"
 Cemented with: 947 sx. *or* _____ ft³
 Top of Cement: Surface Method Determined: Topoff Job

Intermediate Casing

Hole Size: 12.25" Casing Size: 9.625"
 Cemented with: 1970 sx. *or* _____ ft³
 Top of Cement: Surf Method Determined: Circ

Production Casing

Hole Size: 8.5" Casing Size: 5.5"
 Cemented with: 2220 sx. *or* _____ ft³
 Top of Cement: 1624' Method Determined: CBL
 Total Depth: 15,115' Total Vertical Depth: 10,016'

Injection Interval MD/TVD

10,198 / 9950' feet to 11,198' / 9995'

(Perforated or Open Hole; indicate which)

INJECTION WELL DATA SHEET

Tubing Size: 2.875" Lining Material: None

Type of Packer: 5.5" x 2.875" Feed Thru Packer

Packer Setting Depth: 9500' / 9400' (MD/TVD)

Other Type of Tubing/Casing Seal (if applicable): NA

Additional Data

1. Is this a new well drilled for injection? _____ Yes X _____ No

If no, for what purpose was the well originally drilled? _____

Producer

2. Name of the Injection Formation: 2nd Bone Spring

3. Name of Field or Pool (if applicable): Cotton Draw; Bone Spring

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used. _____

None

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area: _____

OVERLYING: FIRST BONE SPRING 9000'

UNDERLYING: THIRD BONE SPRING 11000'

INJECTION WELL DATA SHEET

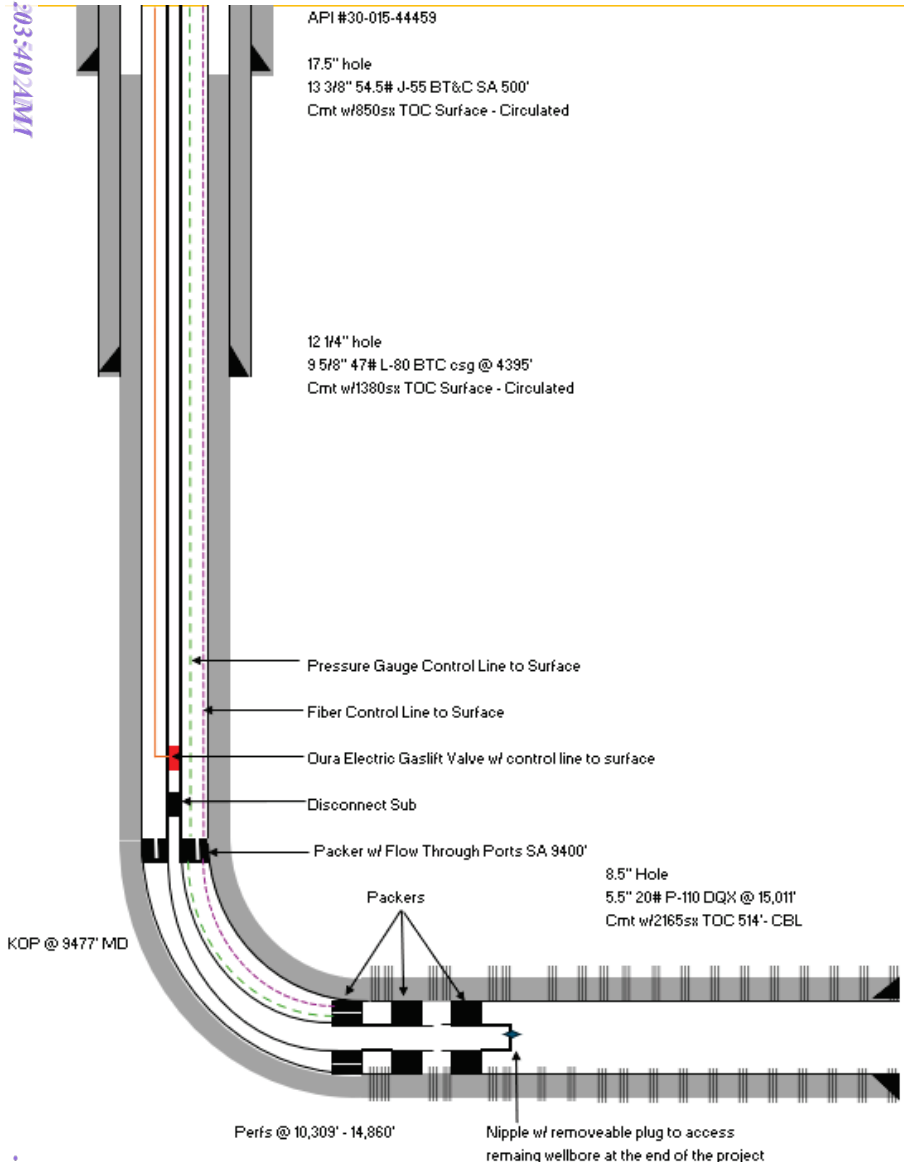
OPERATOR: Oxy USA Inc

WELL NAME & NUMBER: Patton MDP1 17 Federal 1H API 30-015-44459

WELL LOCATION: SWSW 170' FSL 846' FWL M 8 24S 31E
 FOOTAGE LOCATION UNIT LETTER SECTION TOWNSHIP RANGE

WELLBORE SCHEMATIC

WELL CONSTRUCTION DATA



Surface Casing

Hole Size: 17.5" Casing Size: 13.375"
 Cemented with: 850 sx. *or* _____ ft³
 Top of Cement: Surface Method Determined: Circulated

Intermediate Casing

Hole Size: 12.25" Casing Size: 9.625"
 Cemented with: 1380 sx. *or* _____ ft³
 Top of Cement: Surface Method Determined: Circulated

Production Casing

Hole Size: 8.5" Casing Size: 5.5"
 Cemented with: 2165 sx. *or* _____ ft³
 Top of Cement: 514' Method Determined: CBL
 Total Depth: 15,025' Total Vertical Depth: 9996'

Injection Interval MD/TVD

10,309' / 9982' feet to 11,309' / 9983'

(Perforated or Open Hole; indicate which)

INJECTION WELL DATA SHEET

Tubing Size: 2.875 Lining Material: None

Type of Packer: Feed Through Packer

Packer Setting Depth: 9400' / 9370' (MD/TVD)

Other Type of Tubing/Casing Seal (if applicable): None

Additional Data

1. Is this a new well drilled for injection? _____ Yes No

If no, for what purpose was the well originally drilled? _____

Producer

2. Name of the Injection Formation: 2nd Bone Spring

3. Name of Field or Pool (if applicable): Cotton Draw; Bone Spring

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used. _____

No

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area: _____

OVERLYING: FIRST BONE SPRING 9000'

UNDERLYING: THIRD BONE SPRING 11000'

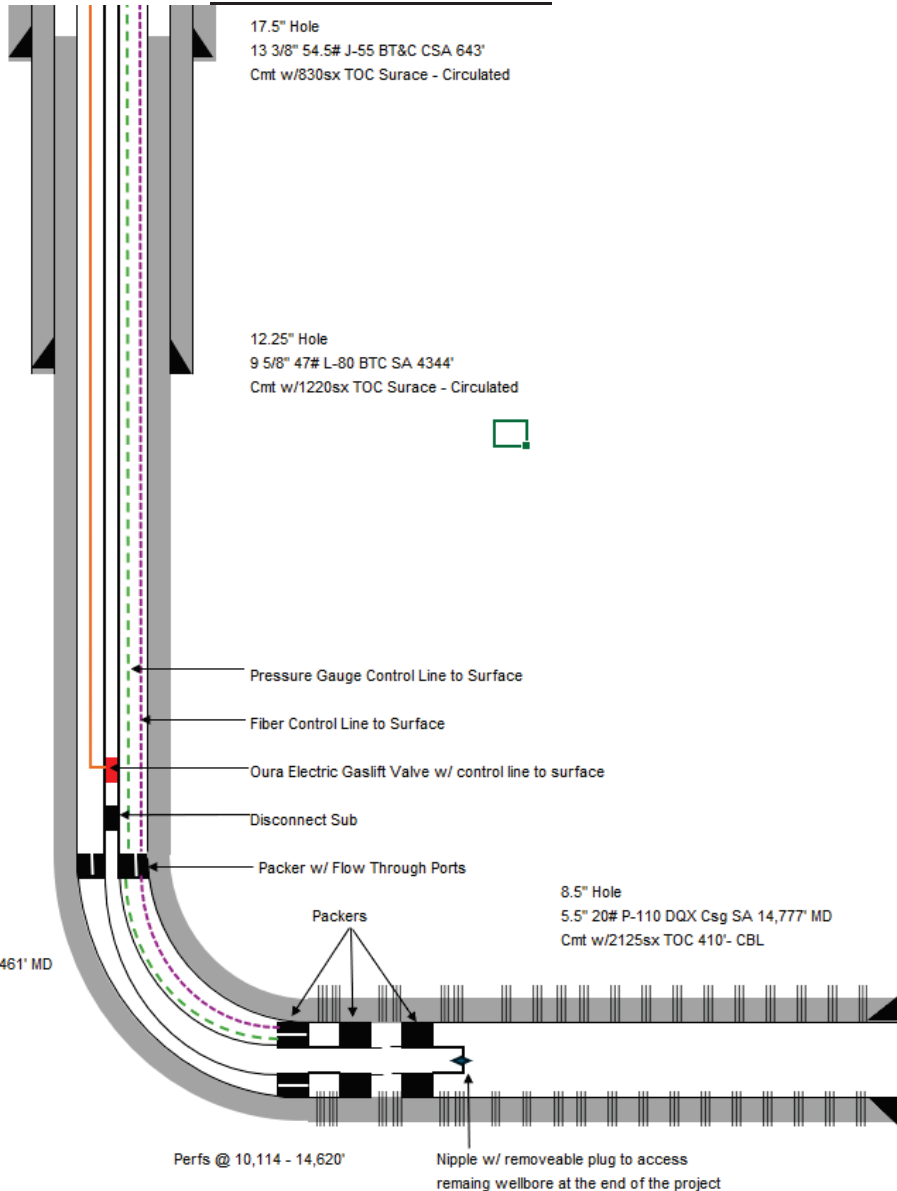
INJECTION WELL DATA SHEET

OPERATOR: Oxy USA Inc

WELL NAME & NUMBER: Patton MDP1 18 Federal 3H API 30-015-44333

WELL LOCATION: <u>NENW 170' FNL 1928' FWL</u>	<u>C</u>	<u>18</u>	<u>24S</u>	<u>31E</u>
FOOTAGE LOCATION	UNIT LETTER	SECTION	TOWNSHIP	RANGE

WELLBORE SCHEMATIC



WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 17.5" Casing Size: 13.375"

Cemented with: 830 sx. *or* _____ ft³

Top of Cement: Surface Method Determined: Circulated

Intermediate Casing

Hole Size: 12.25" Casing Size: 9.625"

Cemented with: 1220 sx. *or* _____ ft³

Top of Cement: Surface Method Determined: Circulated

Production Casing

Hole Size: 8.5" Casing Size: 5.5"

Cemented with: 2125 sx. *or* _____ ft³

Top of Cement: 410' Method Determined: CBL

Total Depth: 14,784' Total Vertical Depth: 10010'

Injection Interval MD/TVD

10,114' / 9900' feet to 11,114' / 9997'

(Perforated or Open Hole; indicate which)

INJECTION WELL DATA SHEET

Tubing Size: 2.875" Lining Material: None

Type of Packer: Feed Through Packer

Packer Setting Depth: 9500' / 9400' (MD/TVD)

Other Type of Tubing/Casing Seal (if applicable): NA

Additional Data

1. Is this a new well drilled for injection? _____ Yes _____ No

If no, for what purpose was the well originally drilled? _____

Producer

2. Name of the Injection Formation: 2nd Bone Spring

3. Name of Field or Pool (if applicable): Cotton Draw; Bone Spring

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used. _____

No

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area: _____

OVERLYING: FIRST BONE SPRING 9000'

UNDERLYING: THIRD BONE SPRING 11000'

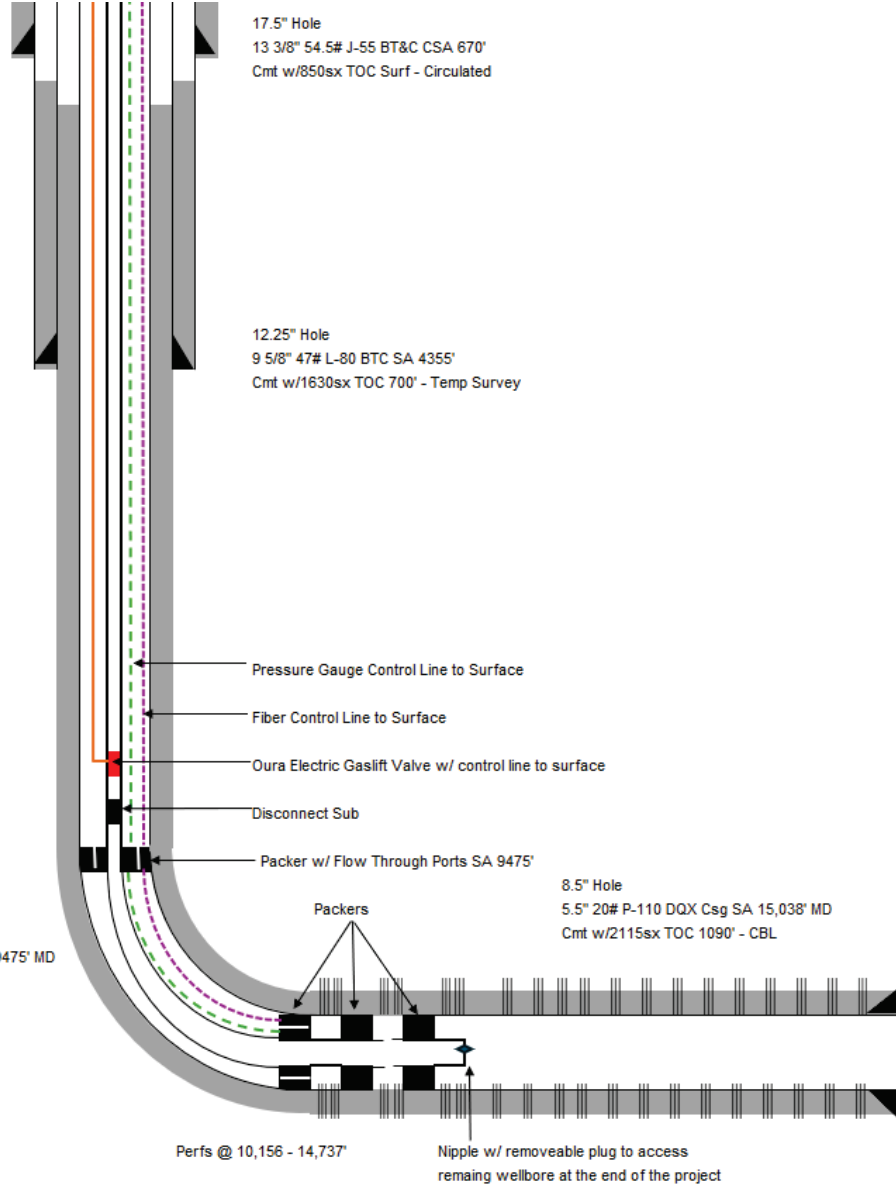
INJECTION WELL DATA SHEET

OPERATOR: Oxy USA Inc

WELL NAME & NUMBER: Patton MDP1 18 Federal 7H API 30-015-44273

WELL LOCATION: NENE 150' FNL 225' FEL A 18 24S 31E
 FOOTAGE LOCATION UNIT LETTER SECTION TOWNSHIP RANGE

WELLBORE SCHEMATIC



WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 17.5" Casing Size: 13.375"
 Cemented with: 850 sx. *or* _____ ft³
 Top of Cement: Surface Method Determined: Circulated

Intermediate Casing

Hole Size: 12.25" Casing Size: 9.625"
 Cemented with: 1630 sx. *or* _____ ft³
 Top of Cement: 700' Method Determined: Temp Survey

Production Casing

Hole Size: 8.5" Casing Size: 5.5"
 Cemented with: 2115 sx. *or* _____ ft³
 Top of Cement: 1090' Method Determined: CBL
 Total Depth: 15,048' Total Vertical Depth: 10,018'

Injection Interval MD/TVD

10,156' / 10,020' feet to 11,156' / 10,040'

(Perforated or Open Hole; indicate which)

INJECTION WELL DATA SHEET

Tubing Size: 2.875 Lining Material: None

Type of Packer: Feed Through Packer

Packer Setting Depth: 9475' / 9454' (MD/TVD)

Other Type of Tubing/Casing Seal (if applicable): None

Additional Data

1. Is this a new well drilled for injection? _____ Yes No

If no, for what purpose was the well originally drilled? _____

Producer

2. Name of the Injection Formation: 2nd Bone Spring

3. Name of Field or Pool (if applicable): Cotton Draw; Bone Spring

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used. _____

No

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area: _____

OVERLYING: FIRST BONE SPRING 9000'

UNDERLYING: THIRD BONE SPRING 11000'

INJECTION WELL DATA SHEET

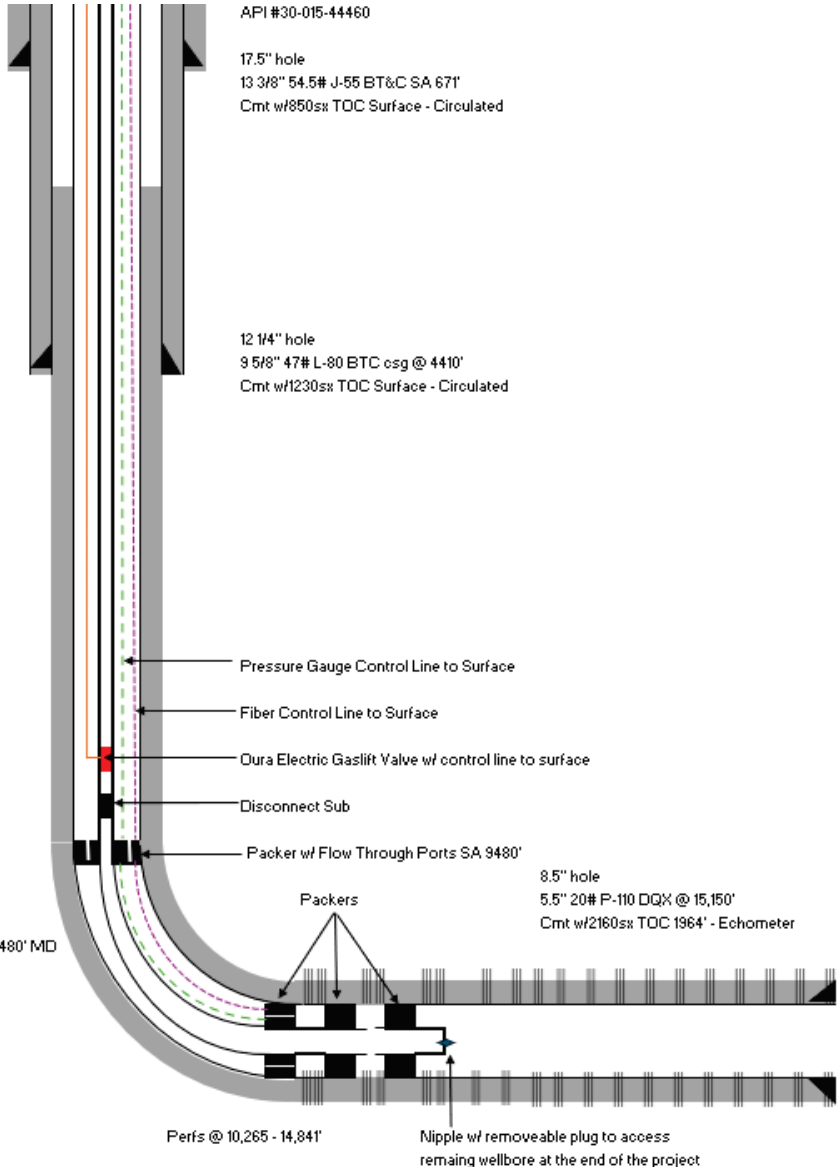
OPERATOR: Oxy USA Inc

WELL NAME & NUMBER: Patton MDP1 17 Federal 2H

API 30-015-44460

WELL LOCATION: 170' FSL 906' FWL	M	8	24S	31E
FOOTAGE LOCATION	UNIT LETTER	SECTION	TOWNSHIP	RANGE

WELLBORE SCHEMATIC



WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 17.5" Casing Size: 13.375"

Cemented with: 850 sx. *or* _____ ft³

Top of Cement: Surface Method Determined: Circulated

Intermediate Casing

Hole Size: 12.25" Casing Size: 9.625"

Cemented with: 1230 sx. *or* _____ ft³

Top of Cement: Surface Method Determined: Circulated

Production Casing

Hole Size: 8.5" Casing Size: 5.5"

Cemented with: 2160 sx. *or* _____ ft³

Top of Cement: 1964' Method Determined: Echometer

Total Depth: 15,165' Total Vertical Depth: 9985'

Injection Interval MD/TVD

10,285' / 9987' feet to 11,285' / 9994'

(Perforated or Open Hole; indicate which)

INJECTION WELL DATA SHEET

Tubing Size: 2.875 Lining Material: None

Type of Packer: Feed Through Packer

Packer Setting Depth: 9480' / 9460' (MD/TVD)

Other Type of Tubing/Casing Seal (if applicable): None

Additional Data

1. Is this a new well drilled for injection? _____ Yes No

If no, for what purpose was the well originally drilled? _____

Producer

2. Name of the Injection Formation: 2nd Bone Spring

3. Name of Field or Pool (if applicable): Cotton Draw; Bone Spring

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used. _____

No

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area: _____

OVERLYING: FIRST BONE SPRING 9000'

UNDERLYING: THIRD BONE SPRING 11000'

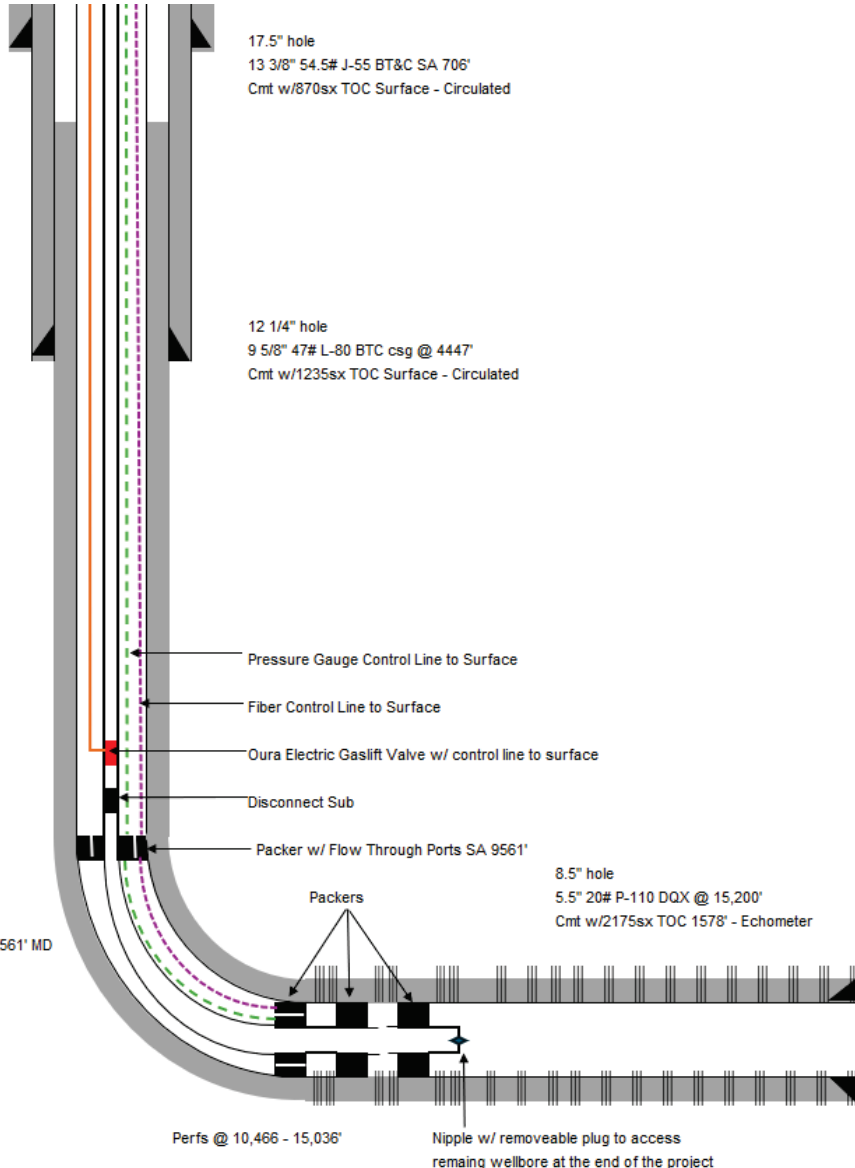
INJECTION WELL DATA SHEET

OPERATOR: Oxy USA Inc

WELL NAME & NUMBER: Patton MDP1 17 Federal 3H API 30-015-44496

WELL LOCATION: 432' FSL 2232' FWL N 8 24S 31E
 FOOTAGE LOCATION UNIT LETTER SECTION TOWNSHIP RANGE

WELBORE SCHEMATIC



WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 17.5" Casing Size: 13.375"
 Cemented with: 870 sx. *or* _____ ft³
 Top of Cement: Surface Method Determined: Circulated

Intermediate Casing

Hole Size: 12.25" Casing Size: 9.625"
 Cemented with: 1235 sx. *or* _____ ft³
 Top of Cement: Surface Method Determined: Circulated

Production Casing

Hole Size: 8.5" Casing Size: 5.5"
 Cemented with: 2175 sx. *or* _____ ft³
 Top of Cement: 1578' Method Determined: Echometer
 Total Depth: 15,210' Total Vertical Depth: 10,057'

Injection Interval MD/TVD

10,466' / 10,100' feet to 11,466' / 10,055'

(Perforated or Open Hole; indicate which)

Released to Imaging: 1/29/2023 11:03:40 AM

Received by OCD: 1/28/2023 4:55:23 PM

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INJECTION WELL DATA SHEET

Tubing Size: 2.875 Lining Material: None

Type of Packer: Feed Through Packer

Packer Setting Depth: 9561' / 9548' (MD/TVD)

Other Type of Tubing/Casing Seal (if applicable): None

Additional Data

1. Is this a new well drilled for injection? _____ Yes No

If no, for what purpose was the well originally drilled? _____

Producer

2. Name of the Injection Formation: 2nd Bone Spring

3. Name of Field or Pool (if applicable): Cotton Draw; Bone Spring

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used. _____

No

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area: _____

OVERLYING: FIRST BONE SPRING 9000'

UNDERLYING: THIRD BONE SPRING 11000'

MAX PRESSURE AND INJECTION RATES

- Max surface pressure calculation for **produced gas**
 1. Determined bottom hole pressure based on 0.2 psi/ft (OCD gradient), 0.433 psi/ft (freshwater gradient), and 9500 ft (injection packer true vertical depth).
 - $(0.2 \text{ psi/ft} + 0.433 \text{ psi/ft}) \times 9500 \text{ ft} = 6013 \text{ psi}$
 2. Determine surface pressure based on *PROSPER model
 - Various inputs for fluid composition, downhole equipment, bottomhole temperature, and injection rate.
 - **4590 psi max surface pressure for produced gas**
- Max injection rate of 1.5-3.0 mmscf/day
 - The estimated max injection rate is limited by the injection assembly

*PROSPER is an industrial standard nodal analysis software for pressure calculation and includes phase behavior change and friction loss.



OPERATIONAL PLAN AND COMPONENTS

The operational plan is an integrated system, like CLGC projects, with multiple components used to mitigate potential risks regarding mechanical integrity. It consists of:

1. Logging

- Thru-tubing Magnetic impedance log, run annually
- Caliper Inspection Log ("CIL") if necessary

2. Mechanical Integrity Tests ("MITs") and well intervention

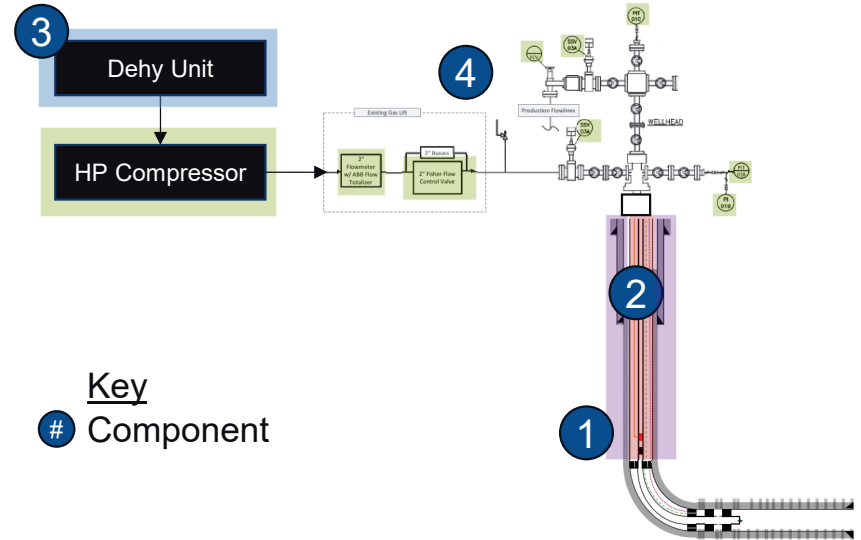
- MIT before
- MIT after 48 months of injection

3. Corrosion prevention

- Injection gas processed with dehydration unit

4. SCADA system and wellhead diagram

- Safety shutdown valves
- Injection rate
- Injection pressure, bradenhead pressure



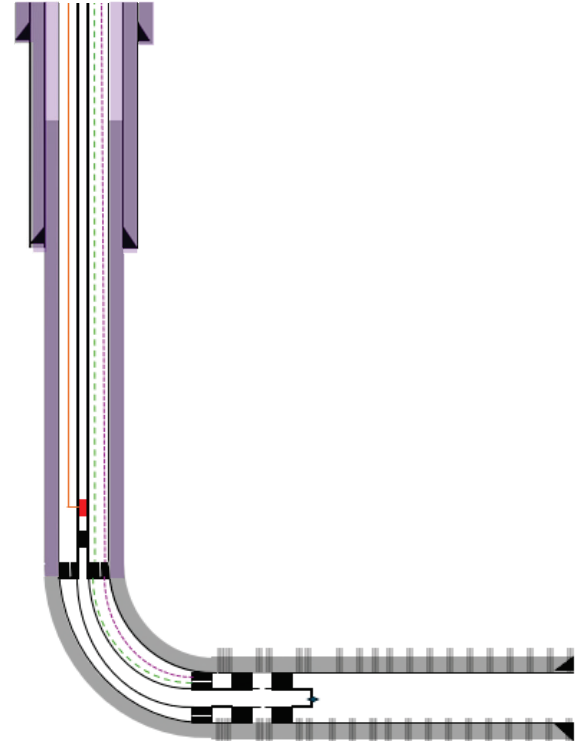
EM LOGGING

- What is EM logging?
 - Electromagnetic (“EM”) logging is a pipe inspection tool that quantifies metal loss in one to five concentric strings of pipe in a wellbore using accurate High-Definition Frequency (“HDF”) technology. This capability enables customers to examine the whole well in one trip and assess pipe condition quickly. The tool has an outside diameter of 1 1/16 in. and operates by inducing HDF electromagnetic energy into the surrounding pipe, which propagates through the concentric well strings with no wellbore fluid influences. The tool consists of two transmitters that emit continuous electromagnetic energy at multiple programmable frequencies, up to 8 frequencies each. This continuous electromagnetic energy of different frequencies and capturing the responses in arrays allows us to put more energy into the surrounding pipe, enabling us to get information on each pipe.
- EM logs will be ran once a year or when is needed due to operational changes.
- What are the benefits of EM logs compared to 40-arm caliper (“CIL”)?
 - The EM log does not need to pull tubing. Additionally, the 40-arm caliper only measures the inner string internal diameter, whereas EM measures internal and external diameter. EM measures up to 5 strings and up to 2.5” of metal thickness.
- Pressure Calculation based on EM log

Formula based on Barlow’s equation:

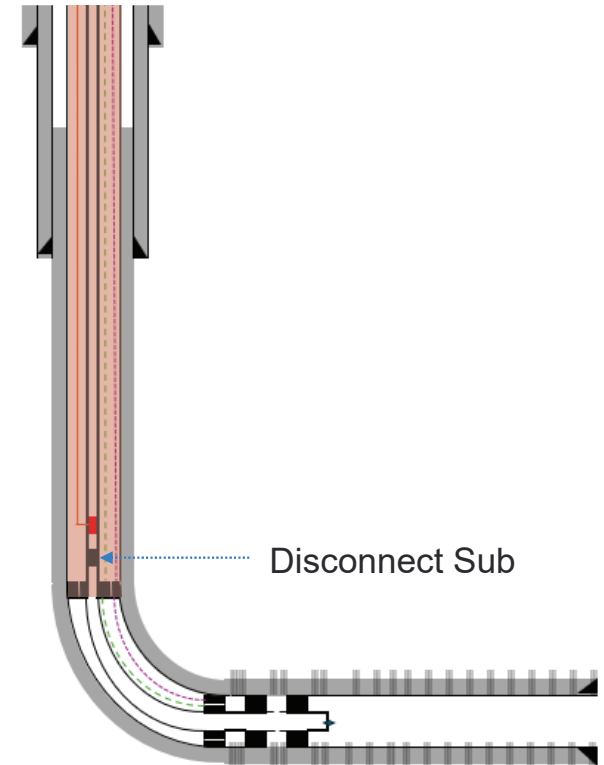
$P = 0.875 * (2 * T * S / D)$, where:

- P = Burst Pressure
 - 0.875 Safety Factor
- S = Minimum Yield Strength of the Pipe
- T = Wall thickness of the pipe
- D = Nominal OD of the pipe



MECHANICAL INTEGRITY TESTS (“MITS”)

- Before injection
 - Pull production assembly
 - Run MIT
 - Install injection assembly
- After injection
 - Disconnect and pull tubing/lines from injection assembly
 - At this point, downhole data collection will cease because lines have been disconnected
 - Run MIT
 - Return well to normal production
- As a contingency, the tubing/lines can be disconnected from the injection assembly if necessary



Patton 17-1H
Producing Gas Sample

52

Artesia Laboratory
200 E Main St.
Artesia, NM 88210
Phone 575-746-3481



Certificate of Analysis

Number: 6030-20110112-006A

Nov. 19, 2020

Chandler Montgomery
Occidental Petroleum
1502 W Commerce Dr.
Carlsbad, NM 88220

Field:	Sand Dunes	Sampled By:	Michael Mirabal
Station Name:	Patton 17-1H	Sample Of:	Gas Spot
Station Number:	17005T	Sample Date:	11/11/2020 11:51
Station Location:	OXY	Sample Conditions:	102 psia, @ 85 °F Ambient: 60 °F
Sample Point:	Downstream	Effective Date:	11/11/2020 11:51
Formation:	Quarterly	Method:	GPA-2261M
County:	Eddy	Cylinder No:	1111-002405
Type of Sample:	Spot-Cylinder	Instrument:	70104124 (Inficon GC-MicroFusion)
Heat Trace Used:	N/A	Last Inst. Cal.:	11/02/2020 0:00 AM
Sampling Method:	Fill and Purge	Analyzed:	11/19/2020 11:35:19 by PGS
Sampling Company:	:SPL		

Analytical Data

Components	Un-normalized Mol %	Mol. %	Wt. %	GPM at 14.65 psia
Hydrogen Sulfide	NIL	NIL	NIL	
Nitrogen	1.655	1.66389	2.133	
Carbon Dioxide	1.143	1.14931	2.315	
Methane	75.365	75.77466	55.637	
Ethane	11.616	11.67923	16.073	3.118
Propane	5.810	5.84137	11.789	1.606
Iso-Butane	0.717	0.72080	1.917	0.235
n-Butane	1.725	1.73458	4.614	0.546
Iso-Pentane	0.386	0.38780	1.281	0.142
n-Pentane	0.408	0.40971	1.353	0.148
Hexanes	0.260	0.26091	1.029	0.107
Heptanes	0.214	0.21506	0.986	0.099
Octanes	0.127	0.12789	0.669	0.065
Nonanes Plus	0.035	0.03479	0.204	0.020
	99.461	100.0000	100.000	6.086

Calculated Physical Properties	Total	C9+
Calculated Molecular Weight	21.85	128.26
Compressibility Factor	0.9962	
Relative Density Real Gas	0.7570	4.4283
GPA 2172 Calculation:		
Calculated Gross BTU per ft³ @ 14.65 psia & 60°F		
Real Gas Dry BTU	1266.5	6974.4
Water Sat. Gas Base BTU	1244.8	6852.4
Ideal, Gross HV - Dry at 14.65 psia	1261.7	6974.4
Ideal, Gross HV - Wet	1239.6	6852.4

Comments: H2S Field Content 0 ppm
Mcf/day 602.5607

Hydrocarbon Laboratory Manager

Quality Assurance: The above analyses are performed in accordance with ASTM, UOP, GPA guidelines for quality assurance, unless otherwise stated.



Patton 17-1H
Injection Gas Sample
Certificate of Analysis
Number: 6030-24090912-001A

53
Artesia Laboratory
200 E Main St.
Artesia, NM 88210
Phone 575-746-3481

Chandler Montgomery
Occidental Petroleum
1502 W Commerce Dr.
Carlsbad, NM 88220

Field:	PERMIAN_RESOURCES	Report Date:	10/10/2024
Station Name:	Patton MDP1 17 Federal 1H Gas Lift	Sampled By:	CG
Station Number:	170311	Sample Of:	Gas Spot
Station Location:	OP-L2090-WELLS-WPI-0000003	Sample Date:	09/15/2024 01:00
Sample Point:	Well	Sample Conditions:	1164 psig, @ 109 °F Ambient: 88 °F
Property ID:	FMP/LSE NMNM89172	Received Date:	09/25/2024
Formation:	NEW_MEXICO	Login Date:	09/25/2024
County:		Effective Date:	09/15/2024 01:00
Well Name:	Gas Lift	Flow Rate:	451 MSCFD
Type of Sample:	Spot-Cylinder	PO/Ref. No:	4502054830
Heat Trace Used:	N/A	Method:	GPA-2261M
Sampling Method:	Fill and Purge	Cylinder No:	5030-00602
Sampling Company:	: OXY	Instrument:	70142339 (Inficon GC-MicroFusion)
Analyzed:	09/27/2024 07:49:07 by CDW	Last Inst. Cal.:	09/23/2024 08:22:22

Analytical Data

Components	Un-normalized Mol %	Mol. %	Wt. %	GPM at 14.65 psia	
Hydrogen Sulfide	0.0000	0.0000	0.0000		GPM TOTAL C2+ 6.246
Nitrogen	1.5101	1.4975	1.9253		GPM TOTAL C3+ 2.986
Methane	76.0184	75.3843	55.5020		GPM TOTAL iC5+ 0.453
Carbon Dioxide	0.9647	0.9567	1.9323		
Ethane	12.3154	12.2127	16.8534	3.260	
Propane	6.0478	5.9974	12.1371	1.649	
Iso-butane	0.8266	0.8197	2.1865	0.268	
n-Butane	1.9727	1.9562	5.2181	0.616	
Iso-pentane	0.3984	0.3951	1.3083	0.144	
n-Pentane	0.4184	0.4149	1.3738	0.150	
Hexanes Plus	0.3686	0.3655	1.5632	0.159	
	100.8411	100.0000	100.0000	6.246	

Calculated Physical Properties	Total	C6+
Relative Density Real Gas	0.7549	3.2176
Calculated Molecular Weight	21.79	93.19
Compressibility Factor	0.9962	

GPA 2172 Calculation:

Calculated Gross BTU per ft³ @ 14.65 psia & 60°F

Real Gas Dry BTU	1271	5113
Water Sat. Gas Base BTU	1249	5024
Ideal, Gross HV - Dry at 14.65 psia	1266.1	5113.2
Ideal, Gross HV - Wet	1243.9	5023.7
Net BTU Dry Gas - real gas	1154	
Net BTU Wet Gas - real gas	1134	

Comments: H2S Field Content: 0 ppm

Mostaq Ahamed
Hydrocarbon Laboratory Manager

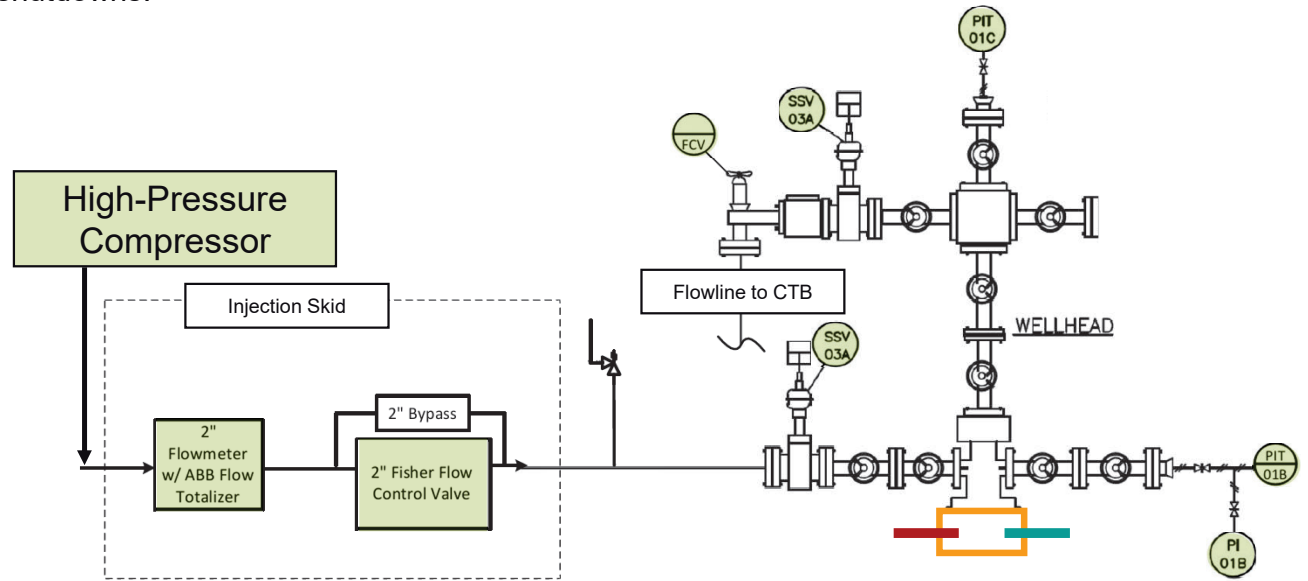
Quality Assurance: The above analyses are performed in accordance with ASTM, UOP, GPA guidelines for quality assurance, unless otherwise stated. The test results apply to the sample as received.

SCADA SYSTEM AND WELLHEAD DIAGRAM

- Wellhead- Install additional spool for *fiber and *electrical cable connections.
- Various components installed at the high-pressure compressor, injection line, and wellhead.
- System will have alarms and high-pressure shutdowns.
- SCADA Plan submitted with application.

Key

- ▭ Additional Spool
- Electrical Cable Connection
- Fiber Cable Connection
- Connected to SCADA
- FCV Flow Control Valve
- SSV Safety Shutdown Valve
- PIT Pressure Transducer
- PI Pressure Gauge



*Each connection to the additional spool has 2 internal valves with 10k pressure ratings that can close in an event.





NM IWM SCADA PLAN

SCADA Plan

WELLSITE

Oxy USA Inc. (Oxy) will monitor the following items on wellsite via SCADA system:

- Injection flow rate and volume
 - Instantaneous Rate
 - Total Injected by Day (volume)
- Tubing Pressure
- Casing Pressure
- Bradenhead Pressures
- Safety devices
 - Pressure kills have an automated kill sequence that is initiated by SCADA system readings.
 - Injection pressure kills on production stream for injection
 - Relief Valves for both production and injection streams to prevent overpressure (not monitored via SCADA other than pressure trend)
 - Control of injection rate and pressures via control valve
 - Control of production stream via automated choke valves to ensure controlled production and prevent over pressurization of flowline

CENTRAL TANK BATTERY (CTB)

Oxy will monitor the following items at the CTB via SCADA system:

- Production Rates
 - Oil
 - Gas
 - Water

HIGH-PRESSOR COMPRESSOR

Oxy will monitor the following items at the High-Pressure Compressor via SCADA system:

- Safety devices
 - Discharge/injection pressure kills of each compressor and for the station
 - Relief Valves on 3rd stage of compressors, to prevent over pressurization (not monitored via SCADA other than pressure trend)
 - Station recycle valves (that recycle discharge pressure back to suction) if the pressure is getting too high for the compressor or station. (not all control valves are capable of remote monitoring of valve position; but still monitored in some sense of the pressure trend for the station)

SUPERVISORY CONTROL AND DATA ACQUISITION (SCADA) DETAILS

Oxy SCADA system consists of PLCs at wellsite, CTB, and High-Pressure Compressor.

- The Programmable Logic Controller (PLCs) will act immediately (within seconds or minutes) as programmed to automatically safe the system as required; for the system and certain device shut down(s).
- The High Alarms and High-High Alarms will be logged and registered in the SCADA system. Also the call center will take the High Alarm and make the physical phone call notification to the production techs to acknowledge the alarm & take action.

ENVIRONMENTAL/SPILL RESPONSE

Oxy will report and track any spill recordable or non-recordable via our CDR system

- Any spill or gas release will be reported by operations calling in to our Call Center to make the report of spill/release. The fluid type and release amount will be disclosed along with location details; and if it's a recordable or non-recordable spill.
- Liquids will be contained and isolated and vacuum trucks will be called in to recover the liquid and will also report the amount of liquid recovered on the same CDR spill form.
 - o Additional reclamation will be coordinated to ensure proper recovery of contaminated soil and liquid.



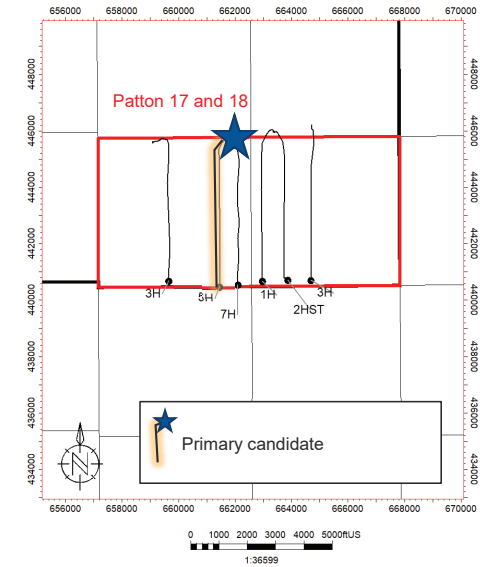
GEOLOGY

GEOLOGIC STATEMENT

Released to Imaging: 1/29/2023 11:03:40 AM

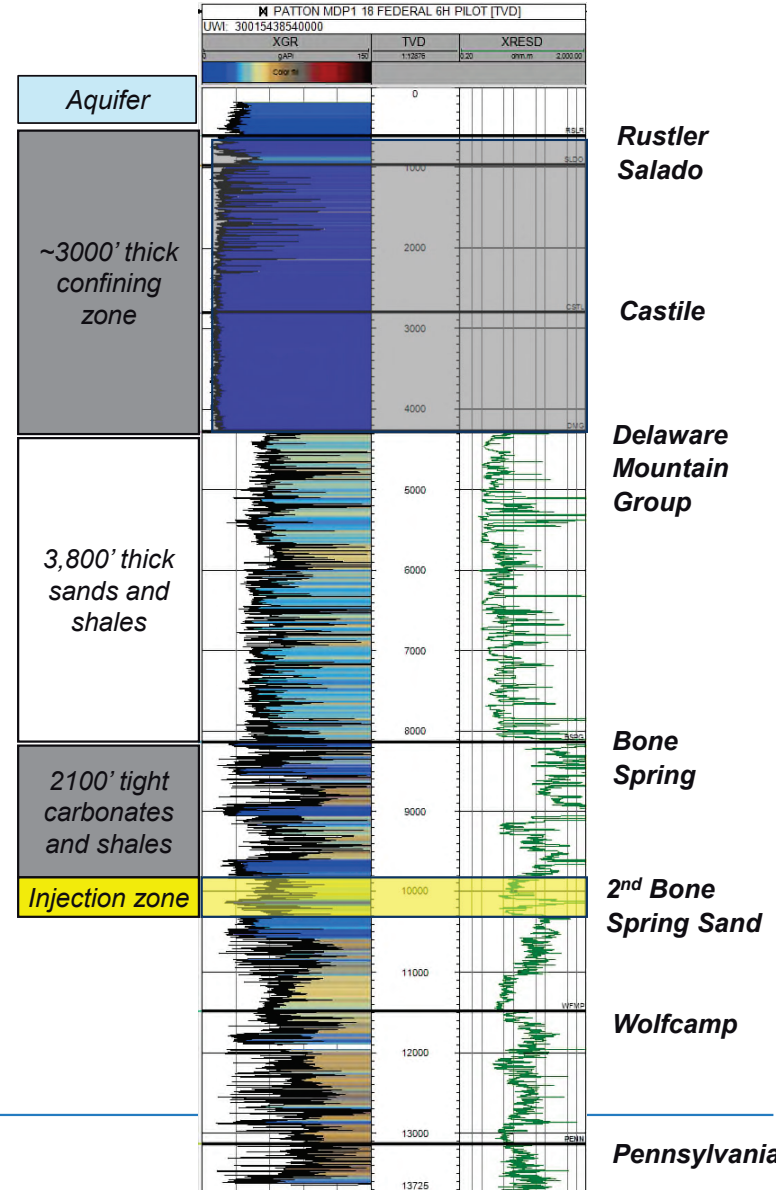
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- The top of the Bone Spring Formation is at ~6,878 ft. (log depth) with over 1,200 ft. of carbonate mudstones and shales acting as additional permeability barriers to upward migration of injected gas.
- Above that the Delaware Mountain Group consists of connate-water bearing and hydrocarbon-bearing sands, with minor limestone and shale intervals and is over 3,800 ft. thick.
- Above that is the Castile Formation consisting of very low permeability anhydrite, gypsum, and calcite that acts as another 1,500 ft. thick barrier to upward movement of fluids.
- The Salado overlies the Castile and forms a 1,000 ft. thick barrier of salt. The top of the Salado is at 877 ft. and the deep aquifers found just above the Salado at the base of the Rustler are saline water.
- The top of Rustler Formation is at about 210 ft. The Rustler top is a continuous anhydrite layer that acts as another permeability barrier creating a perched aquifer above it that is the lowest level where fresh water is known in the area. Because of the thickness of multiple impermeable rock layers above the injection reservoir there is no possible path for migration upward into freshwater aquifers where they exist.
- Laterally the injection will be primarily contained by the reservoir volume that has been previously and partially depleted by the producing well. The tight low-permeability reservoir and the production from the adjacent wells will be the primary constraints on the conformance of the injection to the project area and are expected to contain the injected gas.
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- There is one active monitoring well inside a 2 mile radius of the primary Patton well candidate. No groundwater wells were found.
- S. Noonan 11/14/24

Well Name	API
★ PATTON MDP1 18 FEDERAL 3H	30015443330000
★ PATTON MDP1 18 FEDERAL 5H	30015442720000
PATTON MDP1 18 FEDERAL 7H	30015442730000
PATTON MDP1 17 FEDERAL 3H	30015444960000
PATTON_MDP1_17_FEDERAL_1H	30015444590000
PATTON_MDP1_17_FEDERAL_2H	30015444600100



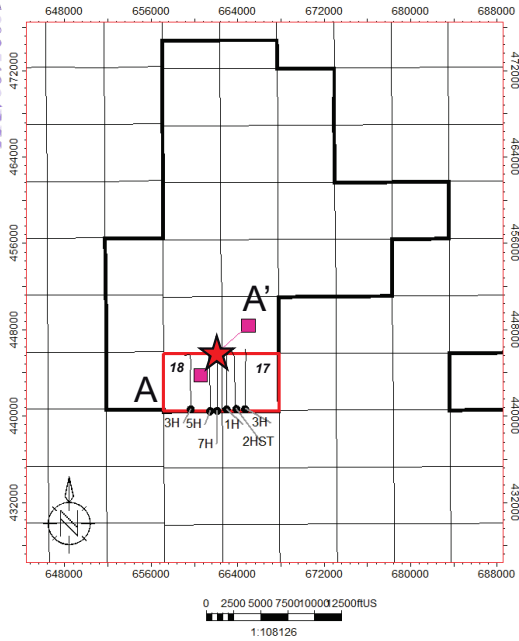
AREA TYPE LOG

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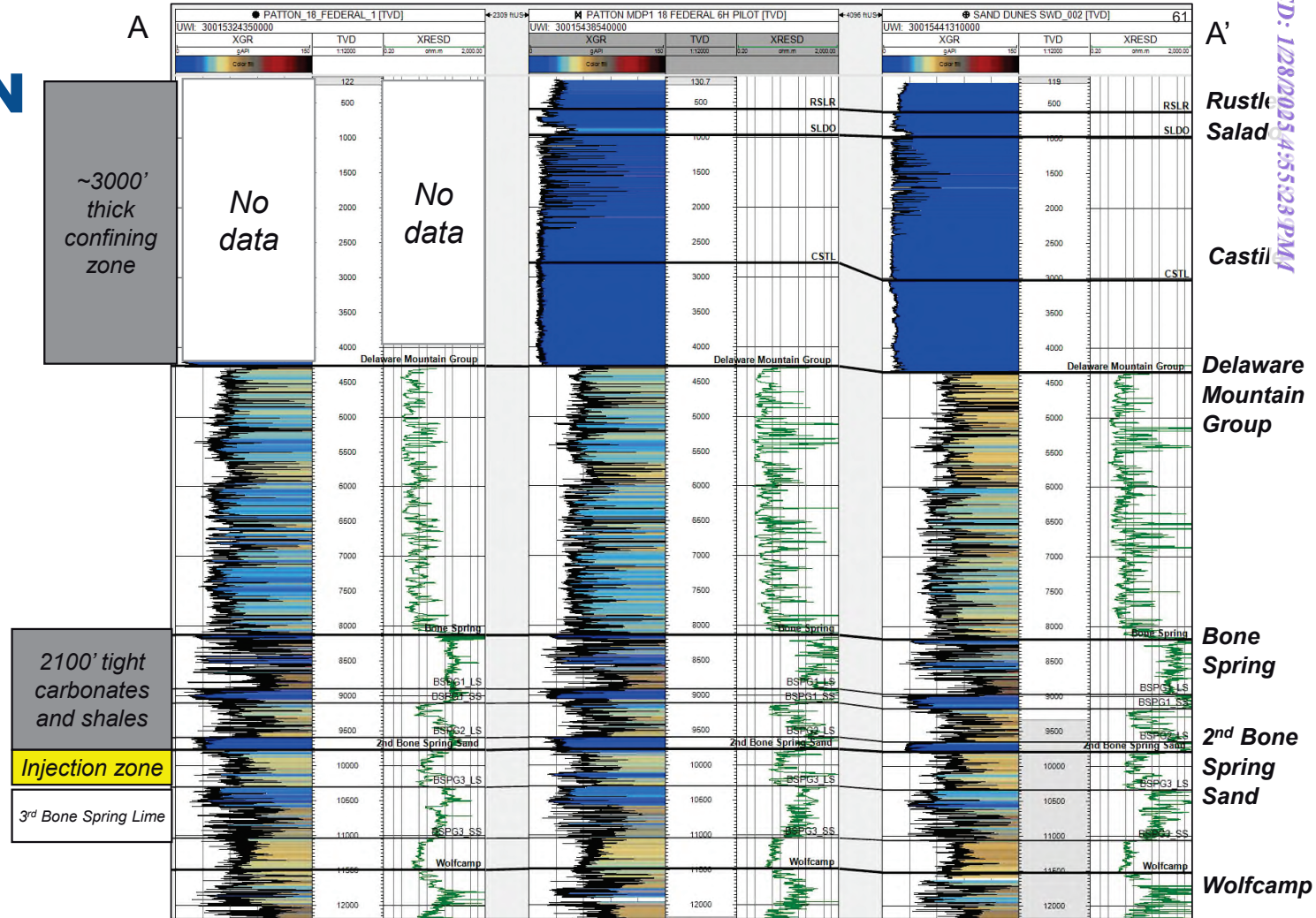


CROSS SECTION

Cross Section Location Map



- Continuous confining zones
- Continuous beds of carbonates and shales above injection zone

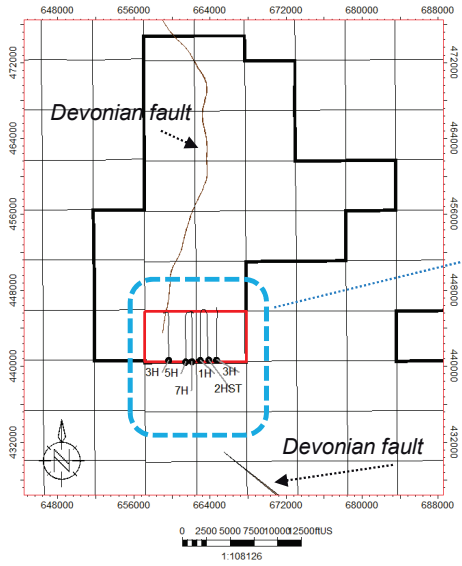


★ Type Log

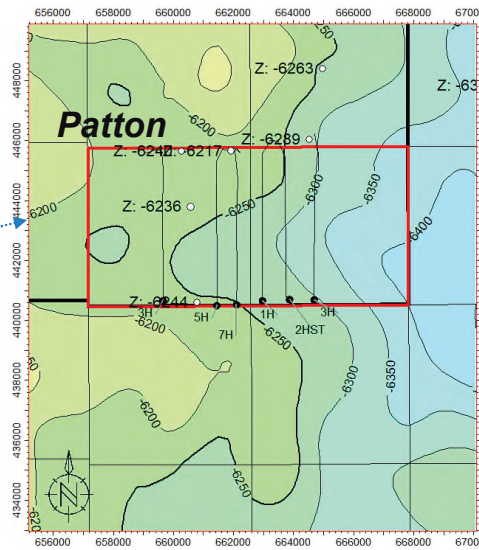


SAND DUNES – PATTON STRUCTURE MAPS

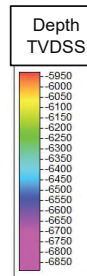
Devonain Faults at Sand Dunes



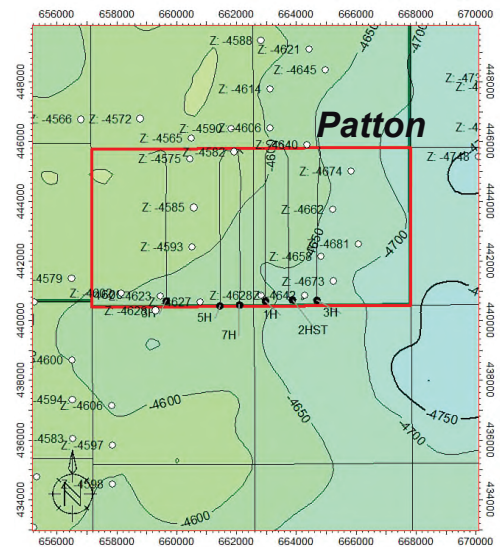
Top Second Bone Spring Sand



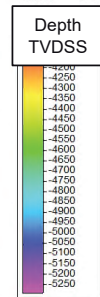
Sand Dunes	
Patton Injection Permit	
Surface name	BSPG2_SS
SSTVD	Date 11/14/2024
Contour inc	50 Occidental Petroleum
Author	S. Noonan O Data point



Top Bone Spring



Sand Dunes	
Patton Injection Permit	
Surface name	BSPG
SSTVD	Date 11/14/2024
Contour inc	50 Occidental Petroleum
Author	S. Noonan O Data point

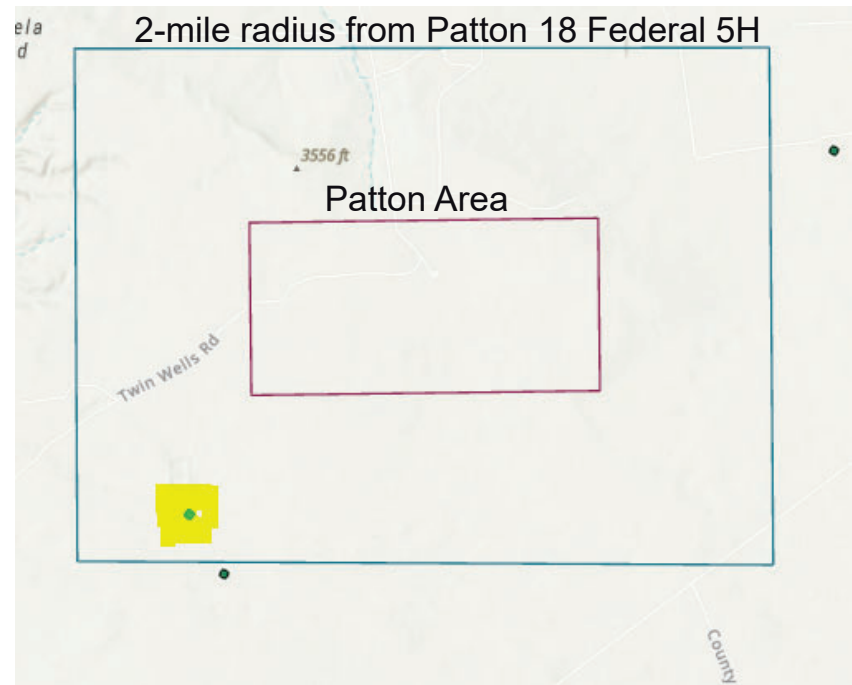


- Sand Dunes area has deep faults but Patton does not have faulting in 2nd Bone Spring Sand.
- Fault offset in Patton sections ends below the 3rd Bone Spring Limestone



ACTIVE GROUNDWATER WELLS

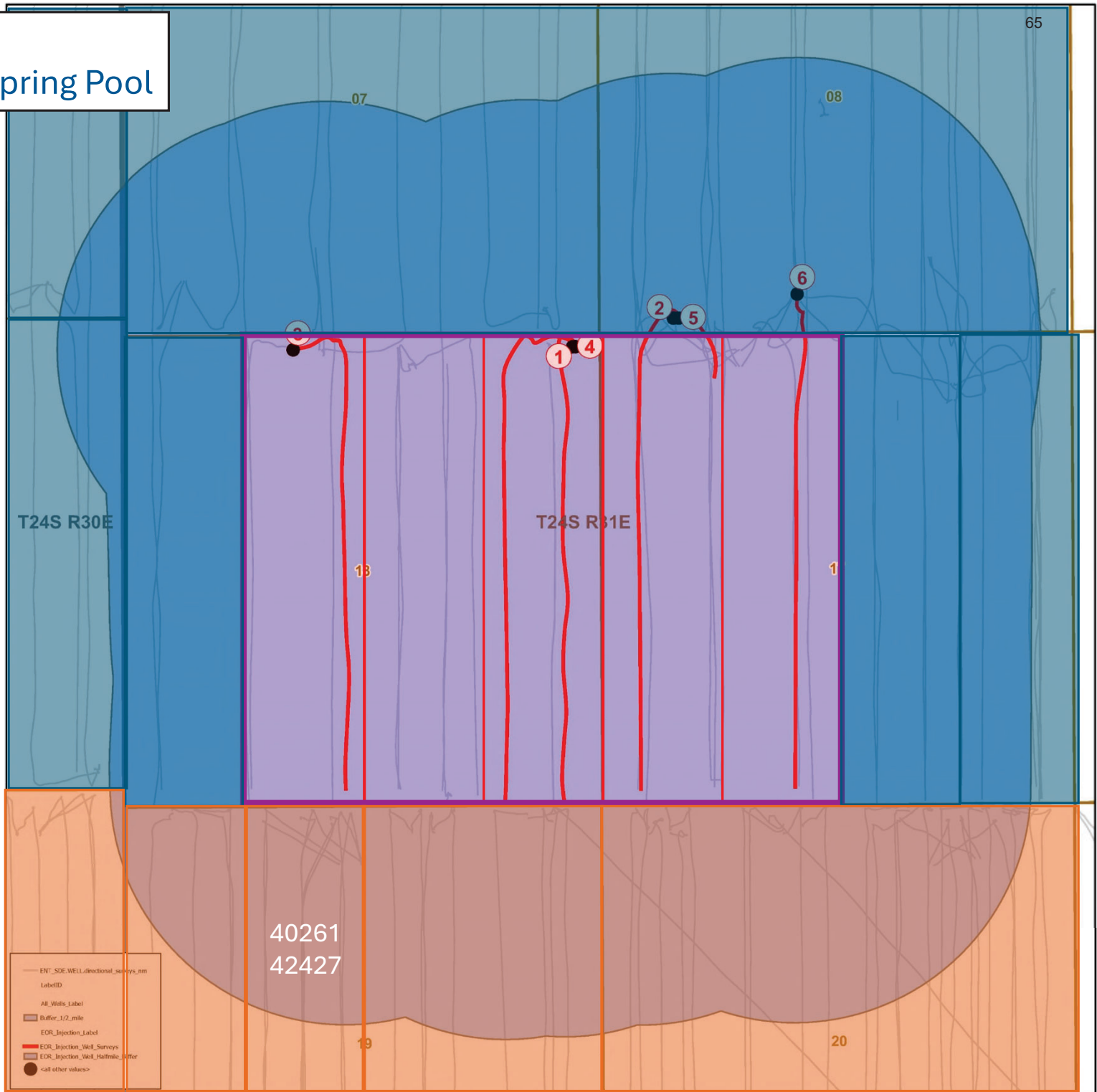
- There are several shallow wells in a 1-mile radius around the Patton area.
- One of these is active but is listed as “monitoring.”





NOTICE

IWM Pilot Project Notice Map- Bone Spring Pool



Key

- Project Area Outline
- Oxy IWM HSU
- Oxy
- XTO
- IWM Candidate well
- Offset directional surveys
- 1/2 Mile Buffer

	ENT_SDE.WELL_directional_surveys_nm
LabelID	
All_Wells_Label	
	Buffer_1/2_mile
	EOR_Injection_Label
	EOR_Injection_Well_Surveys
	EOR_Injection_Well_Halfmile_Buffer
	<all other values>

65

07

08

T24S R30E

T24S R31E

13

1

40261
42427

19

20

IWM Notice List

Party	Address
Agencies and Surface Owners	
Bureau of Land Mangment	301 Dinosaur Trail Santa Fe, NM 87508
Offset Operators	
XTO ENERGY, INC.	6401 Holiday Hill Rd. Building #5 Midland, TX 79701
Other Affected Persons and Parties	
Oxy Y-1 Company	Oxy Y-1 Company 5 Greenway Plaza, Suite 110 Houston, TX 77046
McCombs Energy Ltd	McCombs Energy Ltd 755 Mulberry Ave, Suite 600 San Antonio, TX 78212
US Energy Development Corp	US Energy Development Corp 1521 N. Cooper Street, Suite 400 Arlington, TX 76011
Occidental Permian Limited Partnership	Occidental Permian Limited Partnership 5 Greenway Plaza, Suite 110 Houston, TX 77046
Ironhorse Resource LLC	Ironhorse Resource LLC 6400 S. Fiddlers Green Circle #1720 Greenwood Village, CO 80111

EXHIBIT B

BEFORE THE OIL CONSERVATION DIVISION

Santa Fe, New Mexico

Exhibit No. B

Submitted by: OXY USA INC.

Hearing Date: January 9, 2025

Case No. 25054

JANUARY 2024

OXY REGULATORY



INTRAWELL MISCIBILITY (“IWM”)

EOR PILOT PROJECT

EDUARDO SEOANE

- Work Experience

- Occidental Petroleum – Houston, Texas 2006 – Present
 - Worldwide Completions Supervisor
 - Production Engineer
 - Reservoir Engineer
- Schlumberger – USA 2000-2006
 - Completions Engineer
 - Fracturing
 - Cementing
 - Coiled Tubing

- Education

- Bachelor of Science, Chemical Engineering – Simon Bolivar University– Caracas, Venezuela



ASSEMBLY INSTALLATION PROCEDURE

1. Run a Magnetic log inside the tubing
2. MIRU & Pull tubing
3. Cleanout well to 12k'
4. Run logs:
 - -RCBL, Gyro, Tractor
5. Return well to production
6. Log evaluation
7. MIRU WOR & Pull tubing
8. RIH w/ bit and cleanout to 12k'
9. RIH with packer on tubing for MIT
10. RU MIT Test
11. PU RIH w completion tool with packers via tubing
12. RDMO WO Rig
13. Turn over to ops
14. Commence HP gas injection
15. Commence surveillance



STEPHANIE NOONAN

- Work Experience

- Senior Staff Geologist, Delaware Basin Geomodeler – Occidental Petroleum – Houston, Texas 10/2023 – Present
- Senior Staff Geologist, Development, Gulf of Mexico – Occidental Petroleum – The Woodlands, Texas 10/2022 – 10/2023
- Senior Geologist, Texas Delaware Basin Development – Occidental Petroleum – Houston, Texas 2/2017 – 10/2020
- Geologist Staff, Midland Basin Operations and Development – Occidental Petroleum – Houston, Texas 11/2013 – 2/2017
- Geological Intern, Central Basin Platform Development – Occidental Petroleum – Houston, Texas 5/2012 – 8/2012
- Geological Intern, Central Basin Platform Development – Occidental Petroleum – Houston, Texas 5/2011 – 8/2011

- Education

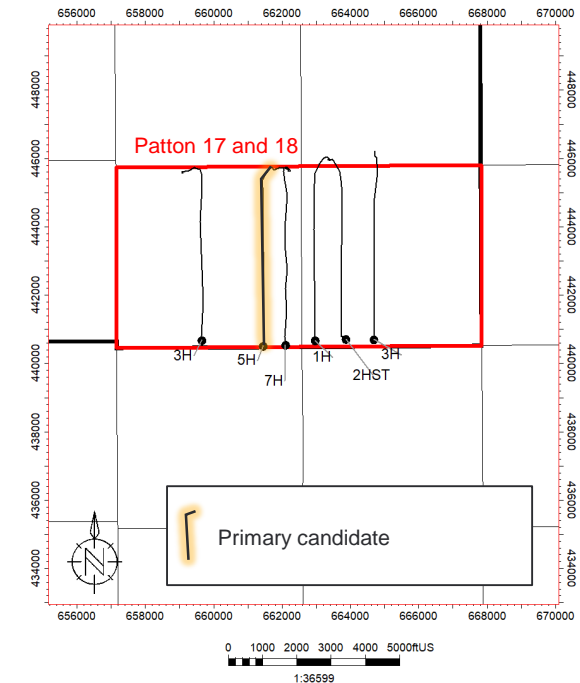
- Master of Science, Geological Sciences – University of Texas – Austin, Texas 8/2013
- Bachelor of Science – Texas A&M University – College Station, Texas



GEOLOGIC STATEMENT

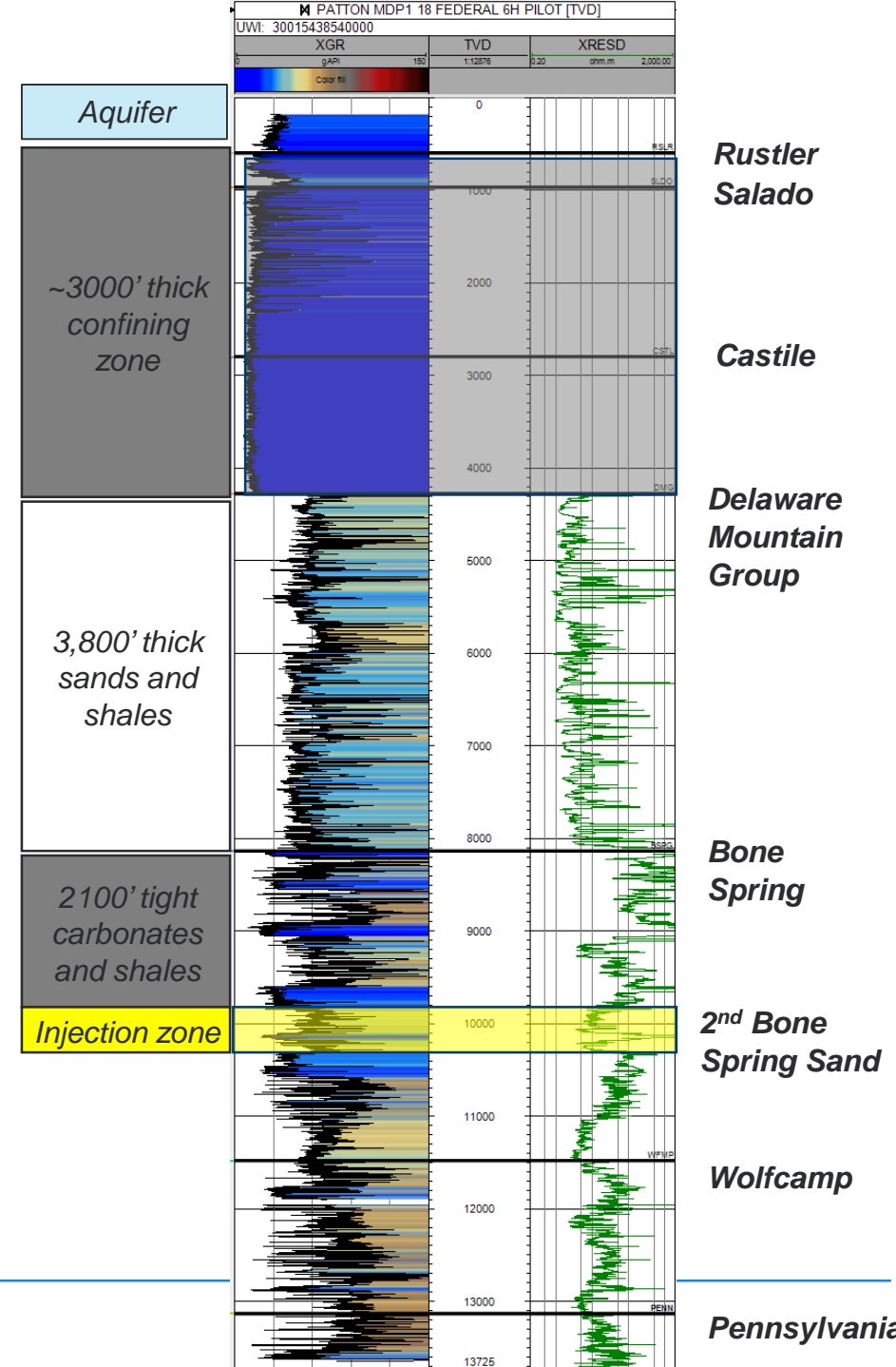
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PATTON MDP1 18 FEDERAL 7H	30015442730000
PATTON MDP1 17 FEDERAL 3H	30015444960000
PATTON_MDP1_17_FEDERAL_1H	30015444590000
PATTON_MDP1_17_FEDERAL_2H	30015444600100



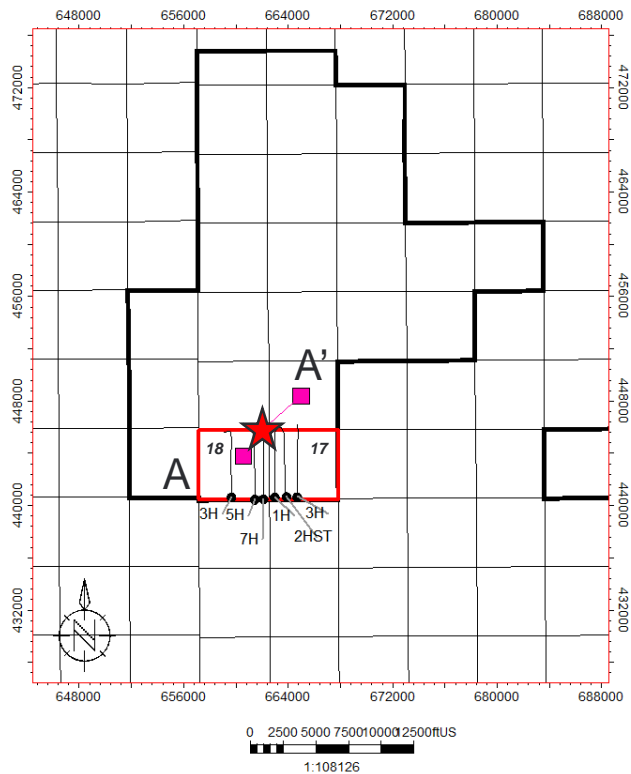
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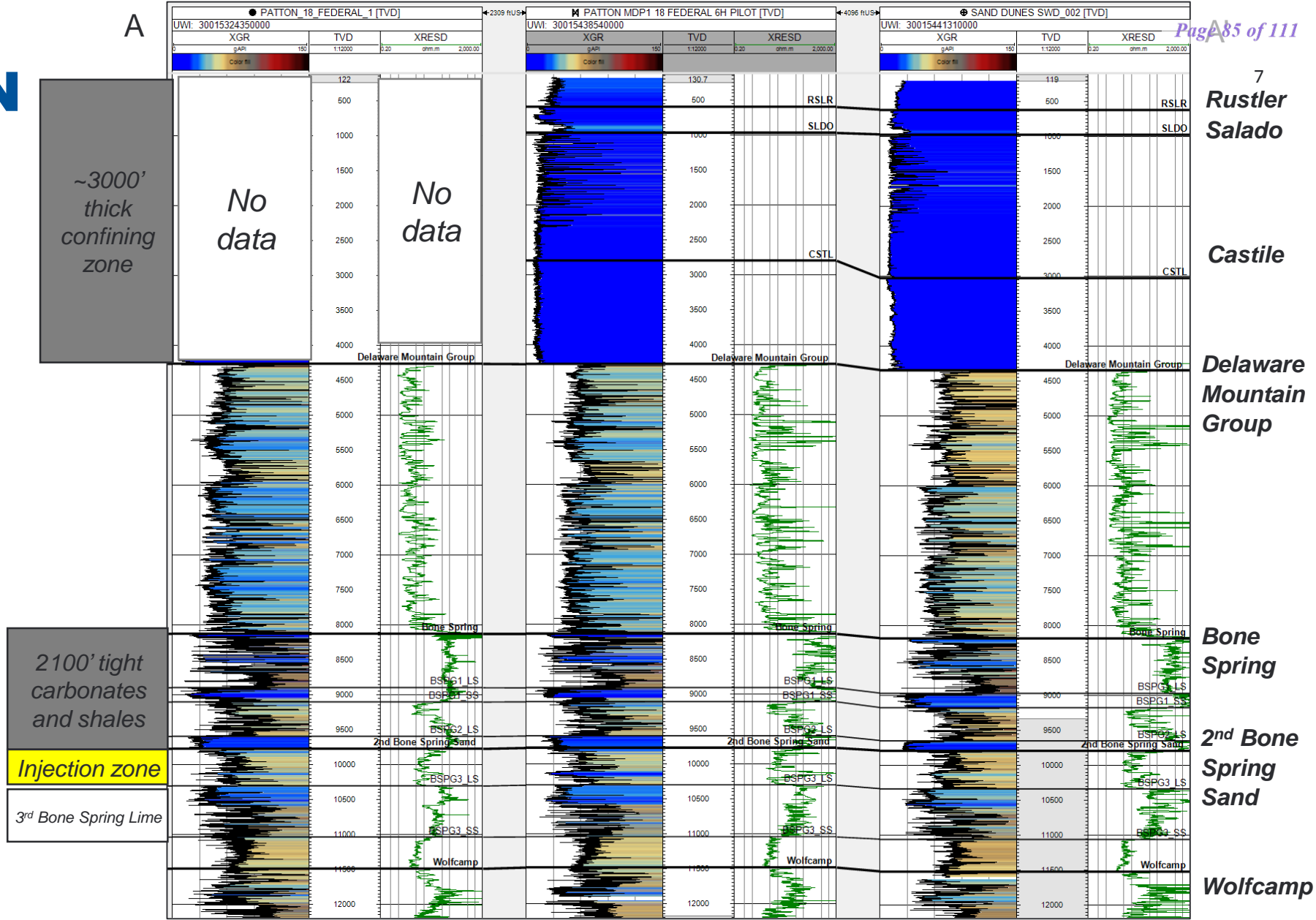


CROSS SECTION

Cross Section Location Map



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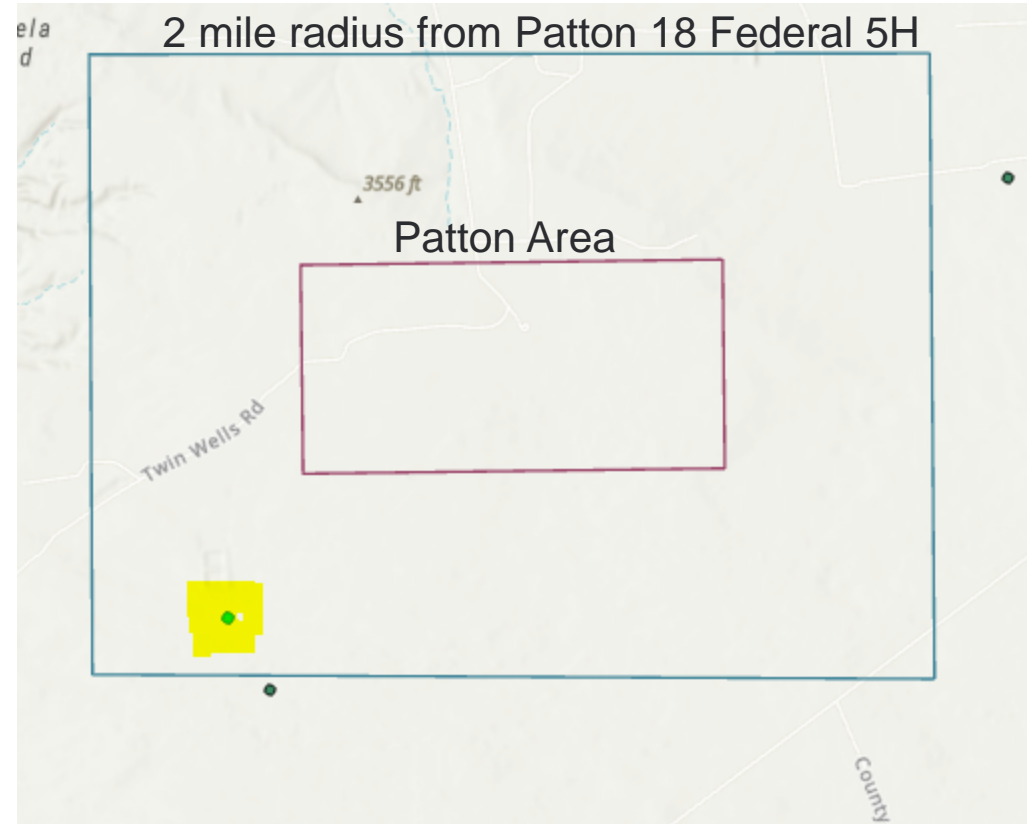


★ Type Log



ACTIVE GROUNDWATER WELLS

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- One of these is active but is listed as “monitoring.”



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

**APPLICATION OF OXY USA INC. FOR A
INTRAWELL MISCIBILITY PILOT
PROJECT, EDDY COUNTY, NEW MEXICO.**

CASE NO. 25054

SELF-AFFIRMED STATEMENT OF EDUARDO SEOANE

1. My name is Eduardo Seoane, and I am employed by OXY USA Inc. (“OXY”) as a petroleum engineer.

2. I have previously testified before the New Mexico Oil Conservation Division as an expert witness in completion engineering.

3. I am familiar with the application filed by OXY in this case.

4. Listed below are the follow-up questions for OXY, following the case heard before the Oil Conservation Division on January 9, 2025. The follow-up questions are numbered per the email sent by Million Gebremichael to Adam Rankin on January 14, 2025. The follow-up questions are indicated with bold text and my answers follow the arrow.

1. Pressure rating and high pressure setpoints for wellhead components and specifications for 2.875-inch Tubing.

i. Provide pressure rating on the wellhead spool and side outlet valves for the 9-5/8-inch Intermediate casing for each of the candidate wells.

➤ The pressure rating on the wellhead spool and side outlet valves for the 9-5/8-inch Intermediate casing is 5,000 psi.

ii. Provide the pressure rating on the wellhead spool and side outlet valves for the 5.5-inch Production casing for each of the candidate wells.

- The pressure rating on the wellhead spool and side outlet valves for the 5-1/2” production casing is 10,000 psi.
- iii. Confirm the weight and grade for the 2.875-inch tubing installed in the candidate wells.**
 - 2-3/8” tubing will be installed instead of 2-7/8” tubing. The tubing weight is 4.6 lbs/ft and grade is L-80.
- iv. Provide the burst pressure ratings for the 2.875-inch tubing.**
 - 2-3/8” tubing will be installed. The burst pressure is 11,200 psi.
- v. Provide the collapse pressure ratings for the 2.875-inch tubing.**
 - 2-3/8” tubing will be installed, and the collapse pressure is 11,780 psi.
- vi. Confirm which annular spaces will be monitored by the SCADA system, and the corresponding pressure shutdown setpoints:**
 - a. Will the 13-3/8” x 9-5/8” Annulus be monitored by SCADA? What is the corresponding setpoint for high-pressure shutdown?**
 - Yes, the 13-3/8” x 9-5/8” Annulus will be monitored by SCADA. The setpoint for high-pressure shut down is 1000 psi in alignment with CLGC order conditions.
 - b. Will the 9-5/8” x 5.5” Annulus be monitored by SCADA? What is the corresponding setpoint for high-pressure shutdown?**
 - Yes, the 9-5/8” x 5-1/2” Annulus will be monitored by SCADA. The setpoint for high-pressure shut down is 1000 psi in alignment with CLGC order conditions.

c. Will the 5.5" x 2.875" Annulus be monitored by SCADA? What is the corresponding setpoint for high-pressure shutdown?

- 2-3/8" tubing will be installed. Yes, the 5-1/2" x 2-3/8" Annulus will be monitored by SCADA. The setpoint for high-pressure shut down is 4590 psi (proposed max allowable surface pressure).

4. Overview of future plans to Plug-and-Abandon the well with swellable packers remaining in the well (Refer to images below).

a) After the IWM pilot project is completed, will the tubing be disconnected above the production packer (ie. in the vertical section) and recovered to surface? If the tubing will be disconnected, the production packer and the tubing between the production packer and the horizontal swell packers will remain in place. In this regard, provide details on the following:

- After the IWM pilot project is complete, the tubing above the production packer will remain in place for the remaining productive life of the well. However, it will be removed before Plug and Abandonment operations commence.

b) How will the production packer be removed? Does it require milling operation, similar to a permanent packer?

- Once installed, the production packer and all the components below will remain in the wellbore for the life of the well.
- Here is the retrieval procedure if necessary. It does not require milling:
 1. Before releasing the packer, ensure that the fluid in the tubing equalizes to the pressure beneath the packer or to the wellbore.

2. Prepare the wellhead and Blow Out Preventer (BOP) stack for pulling the injection assembly.
3. Chemical cut or mechanical cut below the packer.
4. Attach the elevators to the landing joint and apply the pulling force.
 - The pulling force above string weight required is determined by the value of the shear ring installed in the packer.
 - The value will be recorded on the Job Report from the Installation Technician
5. Retrieval of the packer is by straight pull with an Overpull equal to 51,000 Lbs.
 - Contingency- If the packer does not release at the expected releasing force, slack off weight and re-apply the pulling with an additional 5000 lbs.
 - Repeat the process increasing the force in 5000 lb increments until the packer releases or 80% of the tubing yield strength is reached.
 - If the packer does not release at 80% of the tubing yield strength, contact a Service Provider Technical Advisor for additional support.
6. A sudden loss in weight to the anticipated string weight will indicate that the packer has unset.
7. Allow packer elements to relax for 15 minutes, to avoid swabbing while pulling out of the well.
8. The pulling speed will be dictated by the spooling unit speed, safely winding the cables and the removal of cable protectors.

9. Continue to pull out of hole until the packer is reached.
10. Remove the packer assembly including pup joints from tubing string and lay it out on the deck.

c) How will the tubing (that connects the production packer to the swell packers) be removed to ensure that the required formation tops in the heel section of the well can be suitably isolated with cement plugs as per OCD Plugging requirements?

- The production packer will be set below the top of the Bone Spring formation, so it is not necessary to remove the tubing (that connects the production packer to the swell packers) before commencing PA operations.
- If necessary, the 2 3/8" tubing string be cut above the first swell. The tubing can then be fished.

d) Is there any option to remove the swell packer assembly if operational circumstances required it to be removed?

- We do not anticipate the need to remove the swell packer assembly during the pilot or after the pilot.
- The swell packer assembly can be removed by cutting above and below each swell packer then pulling it out of the hole. The estimated pulling force is 65,000 lbs to 75,000 lbs.
- Orbital Cuts are discussed in the Coil Tubing section – deploy on Coil into the Horizontal
- If the Horizontal section is filled with debris or collapsed, run as deep as possible with an overshot. If unable to latch on, burn over the top of the fish with a shoe.

5. Contingency plan(s) to regain access to the toe section of the well (i.e.. below the swell packers) if the plug cannot be removed from the landing nipple at the end of the tubing. Under this scenario potential waste could occur due to non-productive toe section of the well.

d. Please provide a list of contingencies that could be utilized to remove the plug if Coiled tubing (CT) forces (at the downhole end of the CT) are insufficient to remove the plug with a straight pull or via jarring forces.

➤ To **restore flow access** and not full-bore access, punch holes in the tubing above the plug:

1. Tubing conveyed perforation (TCP)
2. Abrasively perforate with a Hydra Jet tool
3. Mechanically punch with a tubing punch

➤ To **restore full-bore access**, cut the end of the tubing off with either method:

- Orbital cut with the Hydra-Blast tool with an abrasive cutting head.
- If required to be even slimmer, run a radial cutting torch or chemical cutter. The downside is debris (end of the tubing) in the well.
- Abrasively cut through completion components using Hydra-Jet tools where the jets are pointed straight down and tunnel a hole through components.
- Mill through the nipple and plug at the end of the tubing if needed. This is not the fastest method, but it is an option.

e. Contingency plan if fish neck cannot be latched by the coiled tubing.

➤ Usually, inability to latch the fish neck stem from debris of build-up around the fish neck.

- If this is the case, attempt to clean the neck. The cleaning strategy would be based on well conditions:
 - If there are scaling tendencies or probability of organic deposits, wash with an appropriate solvent to break down a problematic deposit.
 - If there is sand, wash the area and try to latch again.
 - Depending on the pulling tool used, wash through the pulling tool to clear simple blockages.
 - For more severe blockage, washing with fluid oscillator tool.
 - If cleaning does not work, damage may be a potential issue.
 - Often this is diagnosed in the field based on observations while trying to engage. If no diagnosis, run a diagnostic tool such as a camera or a lead impression block.
 - Refer to component diagram to see if there is somewhere else to attempt to latch it (i.e. in a smooth bore) if the latch profile is damaged.
 - See options above for restoring full-bore access.
 - If an alignment issue, run a centralizer / stand-off guide in the tool string to ensure the pulling tool can properly engage with the fish neck. A knuckle joint or indexing tools can be added to the string if we need some extra help guiding the tool into the profile.
- f. Contingency plan if fish neck is latched, but plug cannot be released from the landing nipple (i.e.. resulting in CT being stuck-in-hole):**
- Run flow-releasable engagement tool for latching in the first place. This enables disengagement from the fish neck.
 - Run force-enhancing tools like impact hammers or jars.

- Disconnect the recovery BHA from the CT tool string and then latch onto that during the next run.

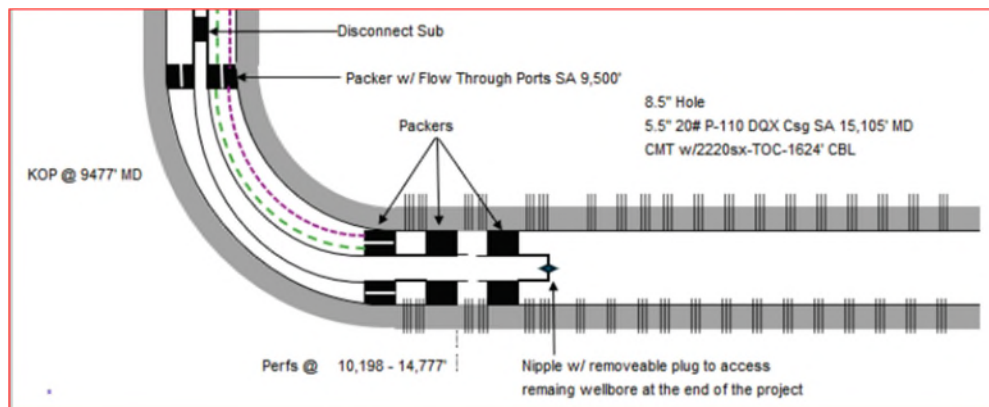
g. Can a flow-release tool be run to disconnect from the plug by pumping through the CT?

- Yes, pulling tools can be configured with flow releasable assemblies designed to disengage from the target by applying a compressive load while pumping at a specified flow rate. These are Coil Tubing pulling tools and open inner diameter (ID), rather than solid core (Wireline tools) and have more internal parts that help the latches disengage.
- Instead of disengaging the BHA from the target, you can also separate the lower parts of the Coil Tubing BHA from the upper parts of the Coil Tubing BHA using a disconnect integrated into the Coil Tubing tool string. This is usually part of the MHA but can go anywhere in the string. With pulling tools, hydraulic disconnects are recommended, but can also be configured as a shear (straight pull) disconnect, pinned higher than your planned pulling forces.

h. Will a ball-drop-disconnect be run in the CT Motor-head- assembly (MHA) to disconnect from the swell packer assembly, thereby allowing the CT to be recovered to surface?

- There are no plans to pull the swell packers on Coil Tubing because the forces needed for that would likely be too high. Coil Tubing can pull up to 125K lbs, pending other factors.

- Yes, we can run a ball drop disconnect in the MHA to have a disconnect point in the BHA to let us drop the tools and pull Coil Tubing to surface. This is a normal part of a standard Coil Tubing tool string.
- i. If ball-drop-disconnect operation was required, but circulation through the CT is not possible (i.e. plugged CT Bottomhole Assembly), will a burst disk be installed in the Motorhead assembly (MHA) to allow circulation to be re-established, and thereby pump the disconnect ball along the horizontal section of the coil to the disconnect ball-seat located in the MHA?**
- Yes, a rupture disc sub can be incorporated into the MHA to provide the option to restore a circulation path if the lower ports on the BHA become buried / clogged. The terms rupture disc and burst disc are interchangeable. Rupture discs typically refer to a metal disc that ruptures; burst discs typically refer to a ceramic disc that shatters. The functionality and purpose are the same for both.



7. Question: Provide OCD with corrosion mitigation plan for the project, i.e., corrossions due to CO₂ etc.

- Injection gas will be dehydrated to water content below 15 lbs of water / MMSCF (310 ppmv). There will be no water in the line, hence no corrosion risk for the casing and OD of the tubing. Corrosion will not occur in dry gas (No aqueous phase). Water content at the dehydration unit is established, and if values are high, an alarm will be triggered.
- This corrosion mitigation plan is part of Oxy's standard operating procedures. It was also reviewed with Khlefa Esaklul. Khlefa is an industrial subject matter expert and Oxy Technical Principal in corrosion, materials, failure analysis, fitness for service, and production chemicals with 40 years of experience, working on major projects & facilities for Oxy worldwide. He is a registered Professional Engineer (PE) & Association for Materials Protection and Performance (AMPP) National Association of Corrosion Engineers (NACE) Fellow.

5. 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.



Eduardo Seoane

1/28/2025

Date

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

APPLICATION OF OXY USA INC. FOR A
INTRAWELL MISCIBILITY PILOT
PROJECT, EDDY COUNTY, NEW MEXICO.

CASE NO. 25054

SELF-AFFIRMED STATEMENT OF XUEYING XIE

1. My name is Xueying Xie, and I am employed by OXY USA Inc. ("OXY") as a petroleum engineer.
2. I have previously testified before the New Mexico Oil Conservation Division as an expert witness in reservoir engineering.
3. I am familiar with the application filed by OXY in this case.
4. Listed below are the follow-up questions for OXY, following the case heard before the Oil Conservation Division on January 9, 2025. The follow-up questions are numbered per the email sent by Million Gebremichael to Adam Rankin on January 14, 2025. The follow-up questions are indicated with bold text and my answers follow the arrow.

2. Confirmation of Reservoir and PVT fluid properties

- i. What was the original reservoir pressure?
 - The original reservoir pressure is 6000 psi.
- ii. **What is the estimated current reservoir pressure?**
 - The estimated current reservoir pressure 1600 psi.
- iii. **What is the estimated original and current reservoir temperatures?**
 - The estimated original and current reservoir temperature are both 150F.

- iv. **What is the Bubble point pressure?**
 - The bubble point pressure (P_b) is 3768 psi.
- v. **What is the minimum miscibility pressure?**
 - The minimum miscibility pressure (MMP) is 4200psi.
- vi. **What is the Oil Formation volume factor (B_o) expressed in units of reservoir barrels/Stock tank barrel (rb/stb)?**
 - The Oil Formation volume factor (B_o) is 1.767 rb/stb.
- vii. **What is the Gas Formation volume factor (B_g) expressed in units of Reservoir Cubic Feet/Standard Cubic Feet (rcf/scf) and in Reservoir Barrels/Standard Cubic Feet (rb/scf)?**
 - The Gas Formation volume factor (B_g) is $3.06e-3$ rcf/scf = $5.45e-4$ rb/scf.
- viii. **What is the Produced Water Formation Volume Factor (B_w) expressed in units of Reservoir Barrel/Stock Tank Barrel (rb/stb)?**
 - The Produced Water Formation Volume Factor is $B_w=1$.
- ix. **What was the initial solution gas oil ratio (R_{si}) at virgin reservoir pressure?**
 - The initial solution gas oil ratio (R_{si}) is 1680 scf/stb.
- x. **What is the producing solution gas oil ratio (R_p) at current reservoir pressure?**
 - The producing solution gas oil ratio (R_p) is currently 6000-9000 scf/stb.

3. Calculation of Voidage Replacement Ratio (VRR)

Using the data acquired from answering questions in question #2, provide an assessment of the Voidage Replacement Ratio (VRR) at in-situ reservoir conditions for the proposed injection rates using the following formula.

$$VRR = (G_{inj} * B_g) / [(N_p * B_o) + (G_p * B_g) + (W_p * B_w)]$$

Where:

G_{inj} = Daily Gas injection volume (scf)

B_g = Gas Formation Volume Factor (rb/scf)

N_p = Average Daily Oil Production Volume for the candidate well in stock tank barrels (stb)

B_o = Oil Formation Volume Factor (rb/stb)

G_p = Average daily gas production volume for the candidate well (scf)

W_p = Average Daily Water Production volume for the candidate well in stock tank barrels (stb)

B_w = Water formation volume factor (rb/stb)

- The Voidage Replacement Ratio (VRR) will vary over the course of the project, and it will be maintained greater than or equal to one. Initially, it will be above 10 and then decrease to between 1 to 5.

6. Provide OCD with the fracture gradient for the Patton MDP1 “18” Federal 5H (API No. 30-015-44272) well. The fracture gradient can be obtained from hydraulic or acid fracturing conducted on the well, or it can be acquired from offsetting wells with similar stratigraphy or lithology.

- The fracture gradient is 0.6617 psi/ft. This is based on DFIT of offset Patton MDP1 18 Federal 1H (API No. 30-015-44317). This is in the same section and same landing depth.

7. Provide OCD with a plume model to predict the gas plume expansion in the project review area.

- On page 3, the diagram on the left illustrates the horizontal portion of the wellbore where the injection assembly will be installed to control injection and production. The dashed line represents the wellbore. The solid black lines indicate the fractures. The red text indicates the injection clusters, and the red arrows represent the injection moving into the reservoir. The gray arrows represent the injection moving through the reservoir. The green text indicates the production clusters, and the green arrows represent the production moving into the wellbore.
- One stage for simulation was modeled, and the results of the modeling show the injectant distribution at the end of four (4) years of injection. This is the diagram on the right. The color shows the molar density of hydrocarbon gas and represents the injectant plume.
- The results of the simulation show the injectant flows from the high-pressure injection clusters to the low-pressure production clusters of the horizontal well.

3. 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.

Xueying Xie

Xueying Xie

1/28/2025

Date



FEBRUARY 2024

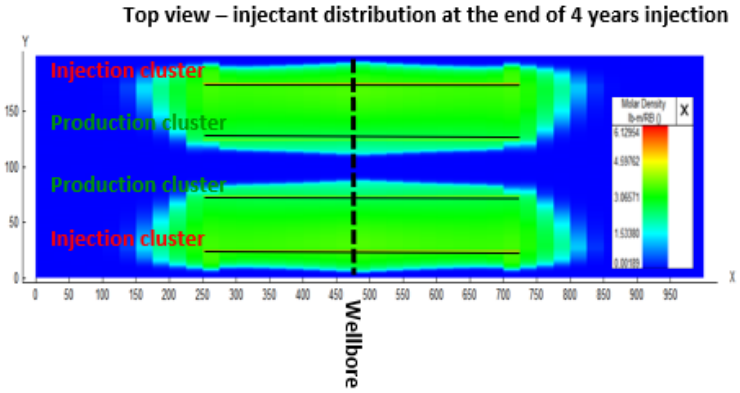
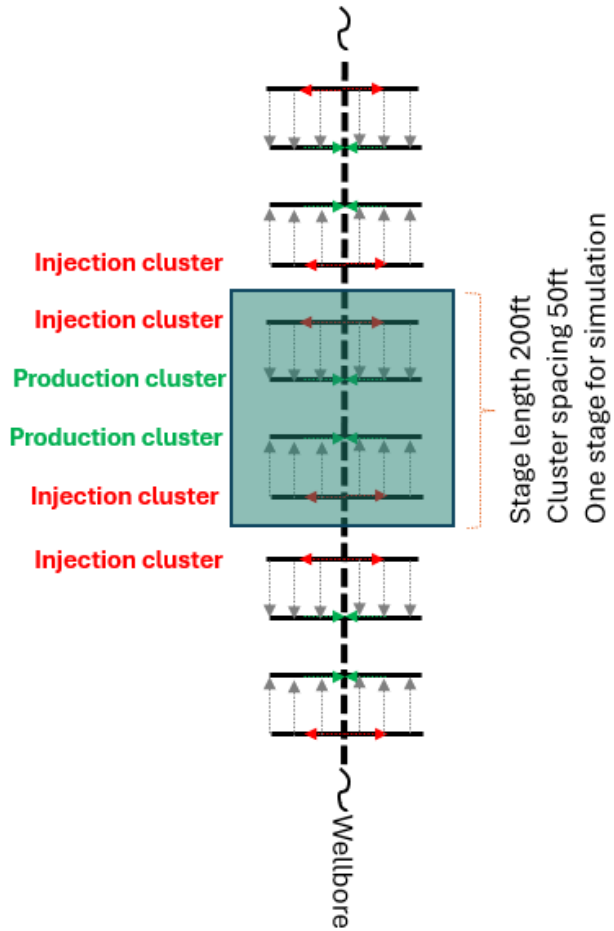
OXY REGULATORY

INTRA-WELL MISCIBILITY (“IWM”)

EOR PILOT PROJECT



RESERVOIR SIMULATION



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

**APPLICATION OF OXY U.S.A. INC. FOR
AUTHORIZATION TO INJECT AND
CREATION OF AN ENHANCED OIL
RECOVERY PILOT PROJECT,
EDDY COUNTY, NEW MEXICO.**

CASE NO. 25054

**SELF-AFFIRMED STATEMENT OF
ADAM G. RANKIN**

1. I am attorney in fact and authorized representative of OXY U.S.A. Inc, (“OXY”), the Applicant herein. I have personal knowledge of the matter addressed herein and am competent to provide this self-affirmed statement.

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

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

4. 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 December 27, 2024.

5. I caused a notice to be published to all parties subject to this proceeding. An affidavit of publication from the publication’s legal clerk with a copy of the notice publication is attached herein.

6. 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.

**BEFORE THE OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Exhibit No. E
Submitted by: OXY USA INC.
Hearing Date: January 9, 2025
Case No. 25054**



Adam G. Rankin

01/02/25

Date



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

December 20, 2024

VIA CERTIFIED MAIL
CERTIFIED RECEIPT REQUESTED

TO: ALL AFFECTED PARTIES

Re: Application of OXY USA Inc. for Authorization to Inject and Creation of an Enhanced Oil Recovery Pilot Project, Eddy County, New Mexico.

Ladies & Gentlemen:

This letter is to advise you that OXY USA Inc. has filed the enclosed application with the New Mexico Oil Conservation Division. A hearing has been requested before a Division Examiner on January 9, 2025, and the status of the hearing can be monitored through the Division’s website at <https://www.emnrd.nm.gov/ocd/>.

It is anticipated that hearings will be held in a hybrid format with both in-person and virtual participation options. The meeting will be held in the Pecos Hall Hearing Room at the Wendall Chino Building, 1st Floor, 1220 South St. Francis Dr., Santa Fe, New Mexico. To participate virtually in the 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 Stephen Janacek at 972-404-3722 or Stephen_Janacek@oxy.com.

Sincerely,

Adam G. Rankin
ATTORNEY FOR OXY USA INC.

T 505.988.4421 F 505.983.6043
110 North Guadalupe, Suite 1, Santa Fe, NM 87501-1849
Mail to: P.O. Box 2208, Santa Fe, NM 87504-2208
www.hollandhart.com

Alaska	Montana	Utah
Colorado	Nevada	Washington, D.C.
Idaho	New Mexico	Wyoming

Oxy - IWM Pilot - Case no. 25054
Postal Delivery Report

9414811898765459559776	Bureau of Land Mangment	301 Dinosaur Trl	Santa Fe	NM	87508-1560	Your item was delivered to the front desk, reception area, or mail room at 12:39 pm on December 26, 2024 in SANTA FE, NM 87508.
9414811898765459559950	Ironhorse Resource LLC	6400 S Fiddlers Green Cir Ste 1720	Greenwood Village	CO	80111-4961	We attempted to deliver your item at 11:13 am on December 24, 2024 in ENGLEWOOD, CO 80111 and a notice was left because an authorized recipient was not available.
9414811898765459559929	McCombs Energy Ltd	755 E Mulberry Ave Ste 600	San Antonio	TX	78212-6013	Your item arrived at our SAN ANTONIO TX DISTRIBUTION CENTER destination facility on December 26, 2024 at 1:12 pm. The item is currently in transit to the destination.
9414811898765459559998	Occidental Permian Limited Partnership	5 Greenway Plz Ste 110	Houston	TX	77046-0521	We now anticipate delivery of your package the next business day. We apologize for the delay.
9414811898765459559943	Oxy Y-1 Company	5 Greenway Plz Ste 110	Houston	TX	77046-0521	We now anticipate delivery of your package the next business day. We apologize for the delay.
9414811898765459559981	US Energy Development Corp	1521 N Cooper St Ste 400	Arlington	TX	76011-5537	Your item was delivered to an individual at the address at 10:36 am on December 26, 2024 in ARLINGTON, TX 76011.

Oxy - IWM Pilot - Case no. 25054
Postal Delivery Report

9414811898765459559936	XTO Energy Inc.	6401 Holiday Hill Rd Bldg 5	Midland	TX	79707-2157	Your item was delivered to the front desk, reception area, or mail room at 10:57 am on December 26, 2024 in MIDLAND, TX 79707.
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AFFIDAVIT OF PUBLICATION

CARLSBAD CURRENT-ARGUS
PO BOX 507
HUTCHINSON, KS 67504-0507

STATE OF NEW MEXICO } SS
COUNTY OF EDDY }

Account Number: 1232
Ad Number: 26950
Description: Oxy IWM Pilot Case No 25054
Ad Cost: \$142.41

Sherry Groves, being first duly sworn, says:

That she is the Agent of the the Carlsbad Current-Argus, a Weekly newspaper of general circulation, printed and published in Carlsbad, Eddy County, New Mexico; that the publication, a copy of which is attached hereto, was published in said newspaper on the following dates:

December 21, 2024

That said newspaper was regularly issued and circulated on those dates.

SIGNED:

Sherry Groves

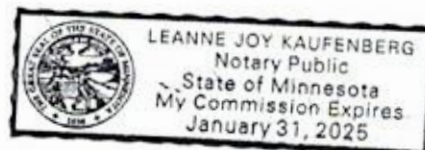
Agent

Subscribed to and sworn to me this 21th day of December 2024.

Leanne Kaufenberg

Leanne Kaufenberg, Notary Public, Redwood County Minnesota

KARI REESE
HOLLAND & HART LLP
420 L STREET, SUITE 550
ANCHORAGE, AK 99501
klreese@hollandhart.com



BEFORE THE OIL CONSERVATION DIVISION

Santa Fe, New Mexico

Exhibit No. F

Submitted by: OXY USA INC.

Hearing Date: January 9, 2025

Case No. 25054

PUBLIC NOTICE

Case No. 25054: Application of OXY USA Inc. for Authorization to Inject and Creation of an Enhanced Oil Recovery Pilot Project, Eddy County, New Mexico. Notice to all affected interest owners, including all heirs, devisees and successors of: Bureau of Land Management; Ironhorse Resource LLC; McCombs Energy Ltd.; Occidental Permian Limited Partnership; Oxy Y-1 Company; US Energy Development Corp.; XTO Energy Inc.

The State of New Mexico, Energy Minerals and Natural Resources Department, Oil Conservation Division ("Division") hereby gives notice that the Division will hold public hearing 8:30 a.m. on January 9, 2025, to consider this application. The hearing will be conducted in a hybrid fashion, both in-person at the Energy, Minerals, Natural Resources Department, Wendell Chino Building, Pecos Hall, 1220 South St. Francis Drive, 1st Floor, Santa Fe, NM 87505 and via the WebEx virtual meeting platform. To participate in the hearings electronically, see the instructions posted on the docket for the hearing date: <https://www.emnrd.nm.gov/ocd/hearing-info/> or contact Freya Tschantz, at Freya.Tschantz@emnrd.nm.gov. Applicant seeks an order authorizing OXY to inject for purposes of an enhanced oil recovery ("EOR") pilot project in the Second Bone Spring Sand interval within the Bone Spring formation ("Pilot Project"), dedicated to a proposed project area comprised of approximately 960-acres, more or less, in Eddy County, New Mexico, (the "Project Area"), as follows:

Township 24 South, Range 29 East

Section 17: W/2

Section 18: E/2 W/2; E/2

Applicant proposes to initiate an Intra-Well Miscibility ("IWM") EOR injection pilot project within a single existing horizontal well. OXY seeks authority to use one of the following six existing horizontal wells within the Project Area to serve as the IWM EOR injection well:

- * The Patton MDP1 "18" Federal 5H (API No. 30-015-44272);
- * The Patton MDP1 "17" Federal 1H (API No. 30-015-44459);
- * The Patton MDP1 "18" Federal 3H (API No. 30-015-44333);
- * The Patton MDP1 "18" Federal 7H (API No. 30-015-44273);
- * The Patton MDP1 "17" Federal 2H (API No. 30-015-44460); and
- * The Patton MDP1 "17" Federal 3H (API No. 30-015-44496).

Applicant seeks authority to inject produced gas from the Delaware, Bone Spring, and Wolfcamp pools into the Second Bone Spring interval of the Bone Spring formation along the horizontal portion of one of the candidate wellbores between approximately 9,900 feet and 10,100 feet true vertical depth. The maximum allowable surface injection pressure is proposed to be 4,590 psi. The proposed average daily injection rate is expected to be approximately 1.5 MMSCF/day with an expected maximum injection rate of 3 MMSCF/day. The subject acreage is located approximately 3 miles southeast of Malaga, New Mexico.

Published in the Carlsbad Current-Argus December 21, 2024.
#26950