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

APPLICATION OF OXY USA INC. FOR APPROVAL OF THE JUNO BONE SPRING UPPER WOLFCAMP CC 23-24 UNIT, TO MODIFY THE INJECTION AUTHORITY APPROVED UNDER ORDER R-21356 AND EXPAND THAT AUTHORITY TO INCLUDE ELEVEN ADDITONAL WELLS IN THE UNITIZED AREA, AND TO CONTRACT EXISTING BONE SPRING AND WOLFCAMP POOLS IN FAVOR OF A NEW OIL POOL COMPRISED OF THE BONE SPRING FORMATION AND THE UPPER WOLFCAMP "XY" AND "A" INTERVALS OF THE WOLFCAMP FORMATION, EDDY COUNTY, NEW MEXICO.

CASE NO. _____

APPLICATION

OXY USA Inc. ("Oxy" or "Applicant") (OGRID No. 16696), through its undersigned attorneys, files this application for an order (a) approving the Juno Bone Spring Upper Wolfcamp CC 23-24 Unit ("Juno Unit"), (b) modifying the injection authority approved under Division Order R-21356 and expanding that authority to include eleven additional wells in the unitized area for pressure maintenance, and (c) contracting the Pierce Crossing; Bone Spring, East Pool (96473), the Pierce Crossing; Bone Spring Pool (50371), the Corral Draw; Bone Spring Pool (96238) and the Purple Sage-Wolfcamp Gas Pool (98220) from the Unit Area and replacing it with a new oil pool comprised of the Bone Spring formation and the Upper Wolfcamp "XY" and A" intervals of the Wolfcamp formation. In support of this application, Oxy states:

1. The proposed unitized area consists of 960 acres, more or less, of federal and fee lands situated in Eddy County, New Mexico ("Unit Area") described as follows:

TOWNSHIP 24 SOUTH, RANGE 29 EAST, N.M.P.M.

Section 23: ALL
Section 24: W/2

2. Oxy owns all the working interest in the Unit Area and is the designated operator under the proposed Unit Agreement.

3. The unitized interval includes the Bone Spring formation and Upper Wolfcamp "XY" and "A" intervals of the Wolfcamp formation as identified by the Gamma Ray log run in the Canyon 23 #1 well (API: 30-015-29318) located in the NE/4 SE/4 of Section 23, Township 24 South, Range 29 East, Eddy County, New Mexico, with the top of the unitized interval being found at a measured depth of 6,878 feet below the surface (-3,819 subsea) and the base of the unitized interval being found at a measured depth of 10,736 feet below the surface (-7,647 subsea) or the stratigraphic equivalent thereto.

4. Oxy has met with the BLM and received preliminary approval of the Unit Agreement.

5. Division Order R-21356, issued in June of 2020, authorized the injection of produced water, produced gas and carbon dioxide into the Bone Spring formation through the Cedar Canyon 23 Federal No. 4H well (API No. 30-015-43281) as part of the Cedar Canyon Pressure Maintenance Pilot Project. Oxy now seeks to expand this pressure maintenance project to include eleven additional wells within the proposed Unit Area that are completed in the Bone Spring formation and the Upper Wolfcamp "XY" and the "A" intervals of the Wolfcamp formation.

6. Oxy seeks to convert these eleven horizontal wells into injection wells to implement a "huff and puff" pressure maintenance project. Oxy intends to periodically inject produced water, produced gas and carbon dioxide into the Bone Spring formation and the Upper Wolfcamp intervals through one or more of these wells followed by a period of flowback and production.

7. Submitted with this application is a complete Form C-108 for the eleven new injection wells and the proposed unitized injection interval.

8. Oxy requests authority to inject at a range of maximum surface injection pressures identified in the Form C-108 that are based upon the nature of the injectant and the depth of the targeted intervals within the Bone Spring and Wolfcamp formations.

9. Due to facility costs and timing associated with implementing this "huff and puff" injection project, Oxy seeks a period of two years to commence injection operations in the Unit Area. *See* Order R-21356 at ¶17 and Order R-14322 at ¶18 (authorizing same).

10. Pursuant to NMAC 19.15.26.8.F(5), Oxy requests that additional injection wells in the Unit Area be approved administratively, subject to the applicable notice requirements.

11. Paragraph 7 of Division Order R-21356 approving the Cedar Canyon 23 Federal No. 4H injection operations states that "[w]ater from outside the operator's Cedar Canyon Treating Facility shall not be injected into these wells (sic)." Oxy seeks authority to expand the source of the produced water beyond the Cedar Canyon Treating Facility for the existing and proposed injection wells and has submitted water analysis that support this expansion.

12. Oxy requests an exception to the traditional requirement that the casing-tubing annulus be filled with an "inert fluid." *See* R-21356 at ¶10. The use of "inert fluid" is not necessary to protect against or detect leakage in the casing, tubing or packer.

13. The portion of the Unit Area comprised of the Bone Spring formation is currently subject to the Pierce Crossing; Bone Spring, East Pool (96473), the Pierce Crossing; Bone Spring Pool (50371) and the Corral Draw; Bone Spring Pool (96238). The portion of the Unit Area comprised of the Wolfcamp formation is currently subject to the Purple Sage-Wolfcamp Gas Pool (98220).

14. To foster administrative reporting and efficiency, Oxy seeks to contract these pools from the Unit Area and replace them with a single, new oil pool comprised of the Bone Spring formation and the Upper Wolfcamp "XY" and "A" intervals of the Wolfcamp formation.

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

WHEREFORE, Applicant requests that this matter be set for hearing before an Examiner of the Oil Conservation Division on October 7, 2021, and that after notice and hearing this Application be approved.

Respectfully submitted,

HOLLAND & HART LLP

By: _____

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ATTORNEYS FOR OXY USA INC.

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 X_____Pressure Maintenance _____Disposal _____Storage
Application qualifies for administrative approval? _____Yes X_____No

II. OPERATOR: OXY USA INC.

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

CONTACT PARTY: STEPHEN JANACEK PHONE: 713-497-2417

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.

IV. Is this an expansion of an existing project? ____X_____Yes _____N
o
If yes, give the Division order number authorizing the project: R-21356

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.

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.

VII. Attach data on the proposed operation, including:

1. Proposed average and maximum daily rate and volume of fluids to be injected;
2. Whether the system is open or 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.

IX. Describe the proposed stimulation program, if any.

*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.

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: Stephen Janacek DATE: 01/21/2021

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: Original and one copy to Santa Fe with one copy to the appropriate District Office

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:

(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.

(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.

C-108 Application
Oxy USA Inc.
Cedar Canyon Section 23-24
Eddy County, NM

I. This is a pressure maintenance project.

II. OXY USA Inc.
P.O. Box 4294
Houston, TX 77210
Contact Party: Stephen Janacek, Phone: 713-493-1986

III. Injection well data sheets and wellbore schematics have been attached for the injection wells covered by this application.

IV. This is an expansion of an existing project: Injection order R-21356 for Cedar Canyon 23 Federal #4H.

V. The map with a two-mile radius surrounding the injection wells and a one-half mile radius for the area of review is attached.

VI. The tabular format of the area of review is attached.

VII. The proposed operations data sheet is attached.

VIII. Please see attached signed statements on geologic data for the injection zone.

IX. There are no proposed stimulation programs for these wells.

X. Logs were filed for the wells on the following dates:

#	Well Name	API	Log File Date(s)
1	GUACAMOLE CC 24-23 FED #12H	30-015-45871	5/19/2020, 6/1/2020
2	GUACAMOLE CC 24-23 FED #11H	30-015-45870	6/1/2020, 2/3/2021
3	CEDAR CANYON 23 #1H	30-015-40667	10/8/2013, 9/2/2015
4	CEDAR CANYON 23 #2H	30-015-41194	4/2/2015
5	CEDAR CANYON 23 FEDERAL #3H	30-015-43290	4/13/2017
6	CEDAR CANYON 23 FEDERAL #4H	30-015-43281	4/11/2016
7	CEDAR CANYON 23 Fed #5H	30-015-43282	4/11/2016
8	CEDAR CANYON 23 FEDERAL COM #6H	30-015-44095	10/2/2017
9	CEDAR CANYON 23 24 FEDERAL #31H	30-015-44179	11/27/2017
10	CEDAR CANYON 23 24 FEDERAL #32H	30-015-44180	11/27/2017, 2/3/2021
11	CEDAR CANYON 23 24 FEDERAL COM #34H	30-015-44178	11/27/2017, 2/3/2021
12	CEDAR CANYON 23 FEDERAL COM #33H	30-015-44074	10/2/2017

XI. Per the Office of the State Engineer GIS website, no active freshwater wells were found within one mile of these wells.

XII. N/A. These are not disposal wells.

XIII. Attached, please find the Proof of Notice.

Side 1

INJECTION WELL DATA SHEET

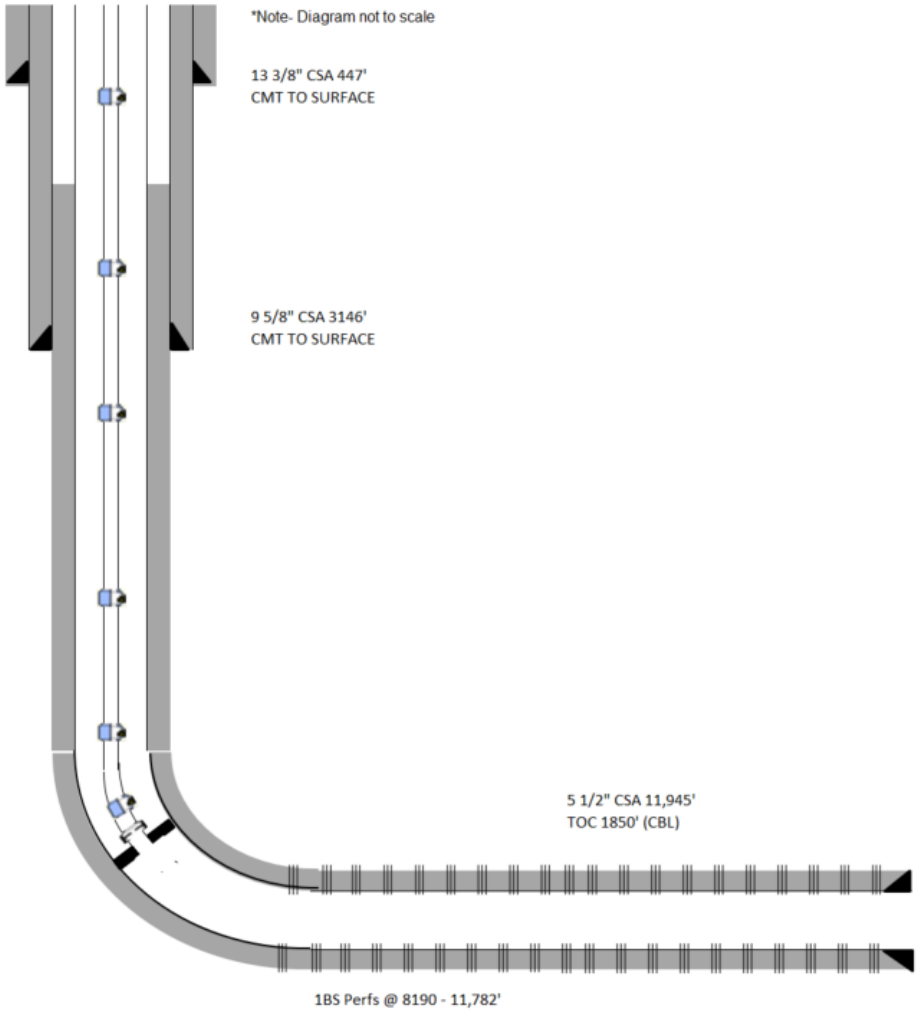
OPERATOR: OXY USA INC.

WELL NAME & NUMBER: CEDAR CANYON 23 #1H API 30-015-40667

WELL LOCATION: 2068' FNL, 483' FWL | E | 23 | 24S | 29E

FOOTAGE LOCATION | UNIT LETTER | SECTION | TOWNSHIP | RANGE

WELLBORE SCHEMATIC



WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 17.5" Casing Size: 13.375"

Cemented with: 650 sx. ***or*** _____ ft^3

Top of Cement: SURFACE Method Determined: CIRC

Intermediate Casing

Hole Size: 12.25" Casing Size: 9.625"

Cemented with: 1850 sx. ***or*** _____ ft^3

Top of Cement: SURFACE Method Determined: CIRC

Production Casing

Hole Size: 8.5" Casing Size: 5.5"

Cemented with: 3000 sx. ***or*** _____ ft^3

Top of Cement: 1850' Method Determined: CBL

Total Depth: 11945' MD / 7886' TVD

Injection Interval

PERFS 8190' MD / 7854' TVD feet to 11782' MD / 7891' TVD

(Perforated or Open Hole; indicate which)

Side 2

INJECTION WELL DATA SHEET

Tubing Size: 2.875" 7.90# L80 BTS6 Lining Material: None

Type of Packer: 5.5" Weatherford 10k AS1X nickel coated packer

Packer Setting Depth: 7700' MD / 7675' TVD

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

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- OIL

2. Name of the Injection Formation: BONE SPRING

3. Name of Field or Pool (if applicable): CORRAL 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: BRUSHY CANYON FORMATION (DELAWARE) 5199'

   UNDERLYING: WOLFCAMP FORMATION 10234'

Side 1

INJECTION WELL DATA SHEET

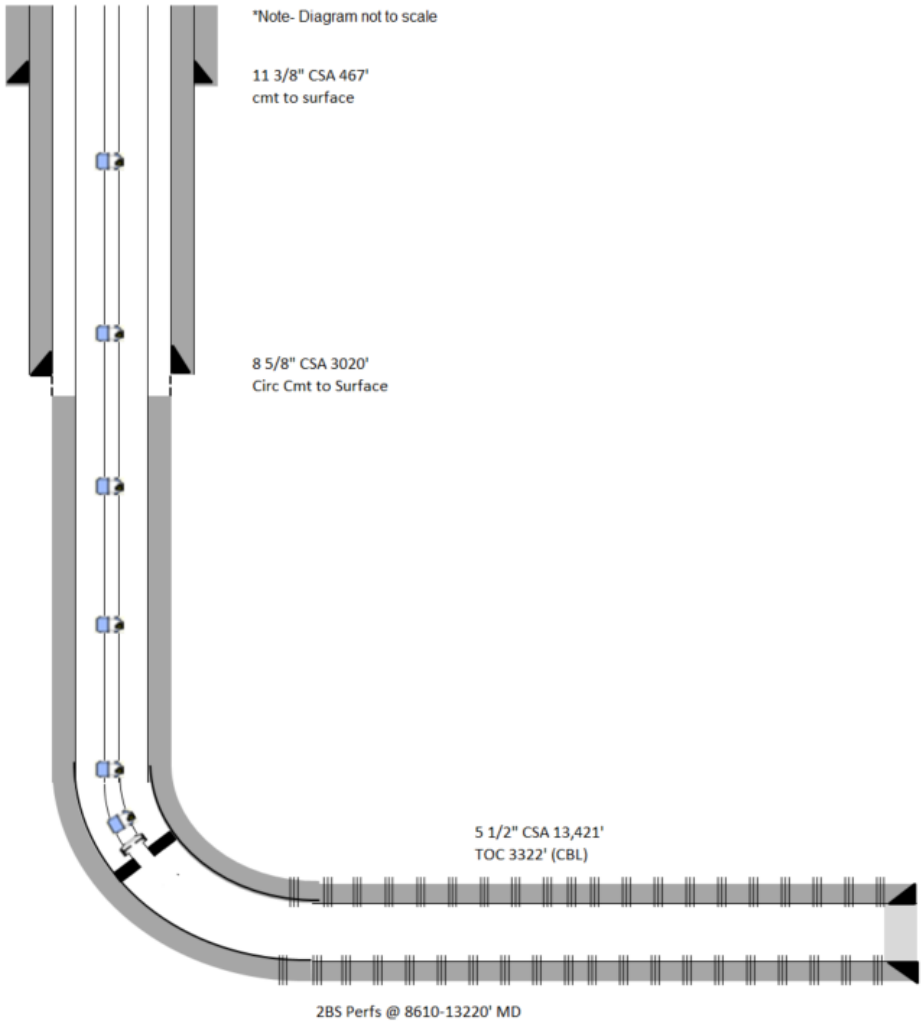
OPERATOR: OXY USA INC.

WELL NAME & NUMBER: CEDAR CANYON 23 COM #2H 30-015-41194

WELL LOCATION: 650' FSL, 660' FWL | M | 23 | 24S | 29E

FOOTAGE LOCATION | UNIT LETTER | SECTION | TOWNSHIP | RANGE

WELLBORE SCHEMATIC



WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 14.75" Casing Size: 11.375"

Cemented with: 721 sx. ***or*** _____ ft^3

Top of Cement: SURFACE Method Determined: CIRC

Intermediate Casing

Hole Size: 10.625" Casing Size: 8.625"

Cemented with: 1120 sx. ***or*** _____ ft^3

Top of Cement: SURFACE Method Determined: CIRC

Production Casing

Hole Size: 7.875" Casing Size: 5.5"

Cemented with: 1360 sx. ***or*** _____ ft^3

Top of Cement: 3322' Method Determined: CBL

Total Depth: 13421' MD / 8902' TVD

Injection Interval

PERFS 8610' MD / 8570' TVD feet to 13220' MD / 8902' TVD

(Perforated or Open Hole; indicate which)

Side 2

INJECTION WELL DATA SHEET

Tubing Size: 2.875" 7.90# L80 BTS6 Lining Material: None

Type of Packer: 5.5" Weatherford 10k AS1X nickel coated packer

Packer Setting Depth: 8664' MD / 8614' TVD

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

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 - OIL

2. Name of the Injection Formation: BONE SPRING

3. Name of Field or Pool (if applicable): PIERCE CROSSING 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: _____

   OVERYLYING: BRUSHY CANYON FORMATION (DELAWARE) 5175'

   UNDERLYING: WOLFCAMP FORMATION 10234'

Side 1

INJECTION WELL DATA SHEET

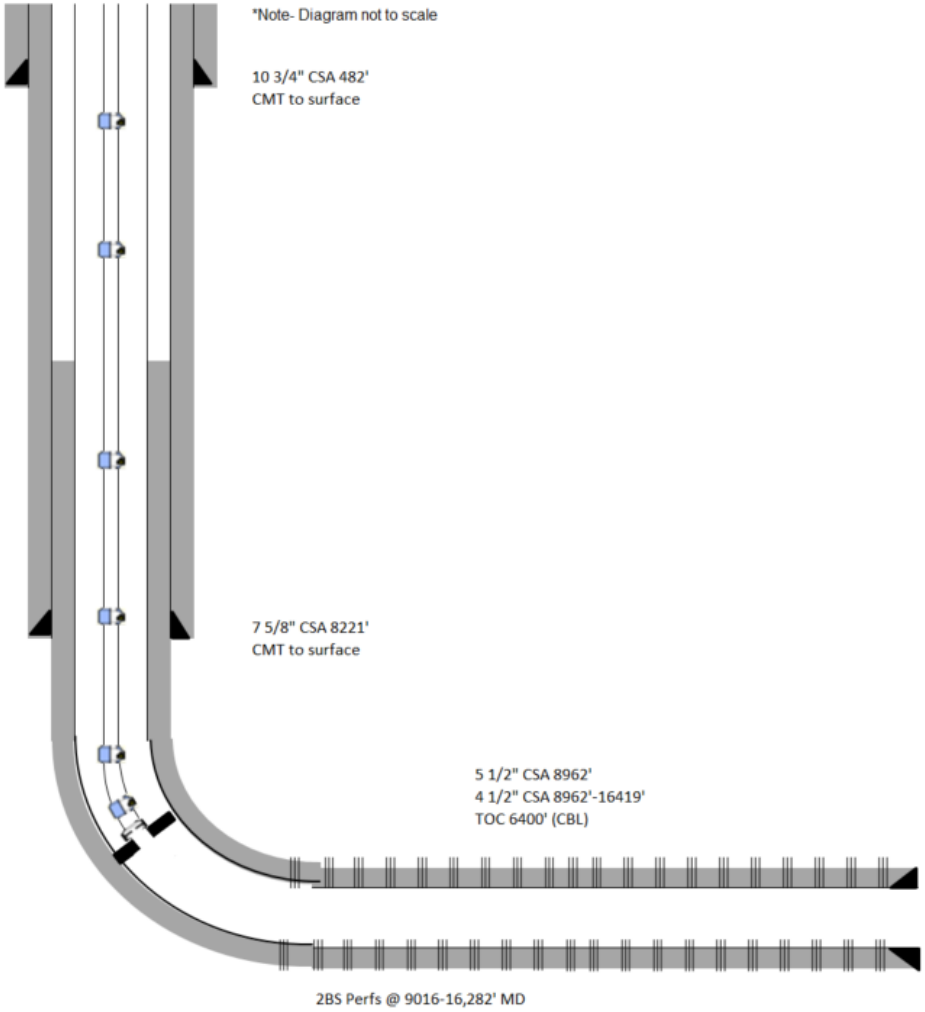
OPERATOR: OXY USA INC.

WELL NAME & NUMBER: CEDAR CANYON 23 FEDERAL #3H API 30-015-43290

WELL LOCATION: 2540' FSL, 200' FEL | I | 22 | 24S | 29E

FOOTAGE LOCATION | UNIT LETTER | SECTION | TOWNSHIP | RANGE

WELLBORE SCHEMATIC



WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 14.75" Casing Size: 10.75"

Cemented with: 382 sx. *or* _____ ft^3

Top of Cement: SURFACE Method Determined: CIRC

Intermediate Casing

Hole Size: 9.875" Casing Size: 7.625"

Cemented with: 3238 sx. *or* _____ ft^3

Top of Cement: SURFACE Method Determined: CIRC

Production Casing

Hole Size: 6.75" Casing Size: 5.5" AND 4.5"

Cemented with: 830 sx. *or* _____ ft^3

Top of Cement: 6400' Method Determined: CBL

Total Depth: 16419' MD / 9010' TVD

Injection Interval

PERFS 9016' MD / 8830' TVD feet to 16282' MD / 9010' TVD

(Perforated or Open Hole; indicate which)

Side 2

INJECTION WELL DATA SHEET

Tubing Size: 2.875" 7.90# L80 BTS6 Lining Material: None

Type of Packer: 5.5" Weatherford 10k AS1X nickel coated packer

Packer Setting Depth: 8800' MD / 8695' TVD

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

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- OIL

2. Name of the Injection Formation: _____

3. Name of Field or Pool (if applicable): PIERCE CROSSING BONE SPRING, EAST

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: BRUSHY CANYON FORMATION (DELWARE) 5209'

   UNDERLYING: WOLFCAMP FORMATION 10234'

Side 1

INJECTION WELL DATA SHEET

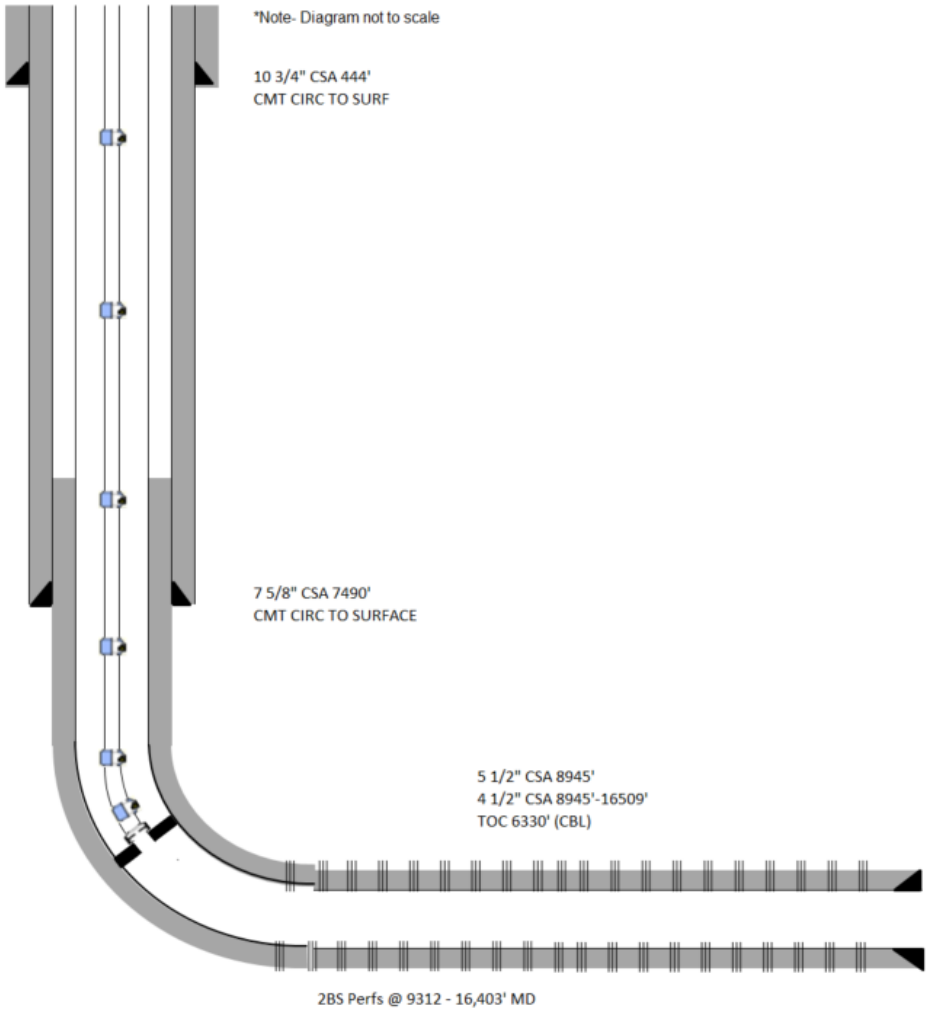
OPERATOR: OXY USA INC.

WELL NAME & NUMBER: CEDAR CANYON 23 FEDERAL #4H API 30-015-43281

WELL LOCATION: 1352' FNL, 195' FEL | H | 22 | 24S | 29E

FOOTAGE LOCATION | UNIT LETTER | SECTION | TOWNSHIP | RANGE

WELLBORE SCHEMATIC



WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 14.75" Casing Size: 10.75"

Cemented with: 550 sx. ***or*** _____ ft^3

Top of Cement: SURFACE Method Determined: CIRC

Intermediate Casing

Hole Size: 9.875" Casing Size: 7.625"

Cemented with: 4000 sx. ***or*** _____ ft^3

Top of Cement: SURFACE Method Determined: CIRC

Production Casing

Hole Size: 6.75" Casing Size: 5.5" AND 4.5"

Cemented with: 1090 sx. ***or*** _____ ft^3

Top of Cement: 6330 Method Determined: CBL

Total Depth: 16509' MD / 9006' TVD

Injection Interval

PERFS 9312' MD / 8849' TVD feet to 16403' MD / 9006' TVD

(Perforated or Open Hole; indicate which)

Side 2

INJECTION WELL DATA SHEET

Tubing Size: 2.875" 7.90# L80 BTS6 Lining Material: None

Type of Packer: 5.5" Weatherford 10k AS1X nickel coated packer

Packer Setting Depth: 8727' MD / 8686' TVD

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

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- OIL

2. Name of the Injection Formation: BONE SPRING

3. Name of Field or Pool (if applicable): PIERCE CROSSING BONE SPRING, EAST

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: BRUSHY CANYON FORMATION (DELAWARE) 5190'

   UNDERLYING: WOLFCAMP FORMATION 10234'

Side 1

INJECTION WELL DATA SHEET

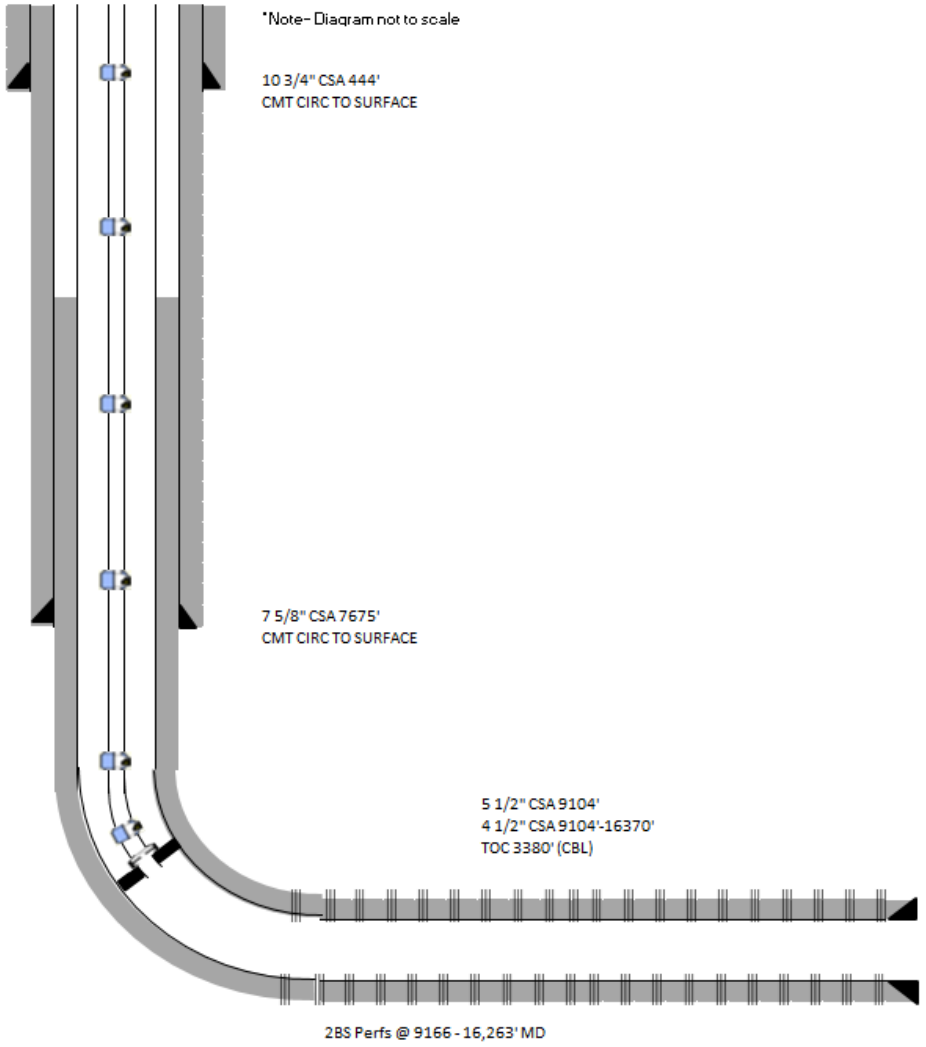
OPERATOR: OXY USA INC.

WELL NAME & NUMBER: CEDAR CANYON 23 FEDERAL #5H API 30-015-43282

WELL LOCATION: 1317' FNL, 195' FEL | A | 22 | 24S | 29E

FOOTAGE LOCATION | UNIT LETTER | SECTION | TOWNSHIP | RANGE

WELLBORE SCHEMATIC



WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 14.75" Casing Size: 10.75"

Cemented with: 550 sx. *or* _____ ft^3

Top of Cement: SURFACE Method Determined: CIRC

Intermediate Casing

Hole Size: 9.875" Casing Size: 7.625"

Cemented with: 1570 sx. *or* _____ ft^3

Top of Cement: SURFACE Method Determined: CIRC

Production Casing

Hole Size: 6.75" Casing Size: 5.5" AND 4.5"

Cemented with: 1110 sx. *or* _____ ft^3

Top of Cement: 3380' Method Determined: CBL

Total Depth: 16370' MD / 9014' TVD

Injection Interval

PERFS 9166' MD / 8844' TVD feet to 16263' MD / 9014' TVD

(Perforated or Open Hole; indicate which)

Side 2

INJECTION WELL DATA SHEET

Tubing Size: 2.875" 7.90# L80 BTS6 Lining Material: None

Type of Packer: 4.5" Weatherford 10k AS1X nickel coated packer

Packer Setting Depth: 8740' MD / 8622' TVD

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

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- OIL

2. Name of the Injection Formation: BONE SPRING

3. Name of Field or Pool (if applicable): PIERCE CROSSING BONE SPRING, EAST

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: BRUSHY CANYON FORMATION (DELAWARE) 5190'

   UNDERLYING: WOLFCAMP FORMATION 10234'

Side 1

INJECTION WELL DATA SHEET

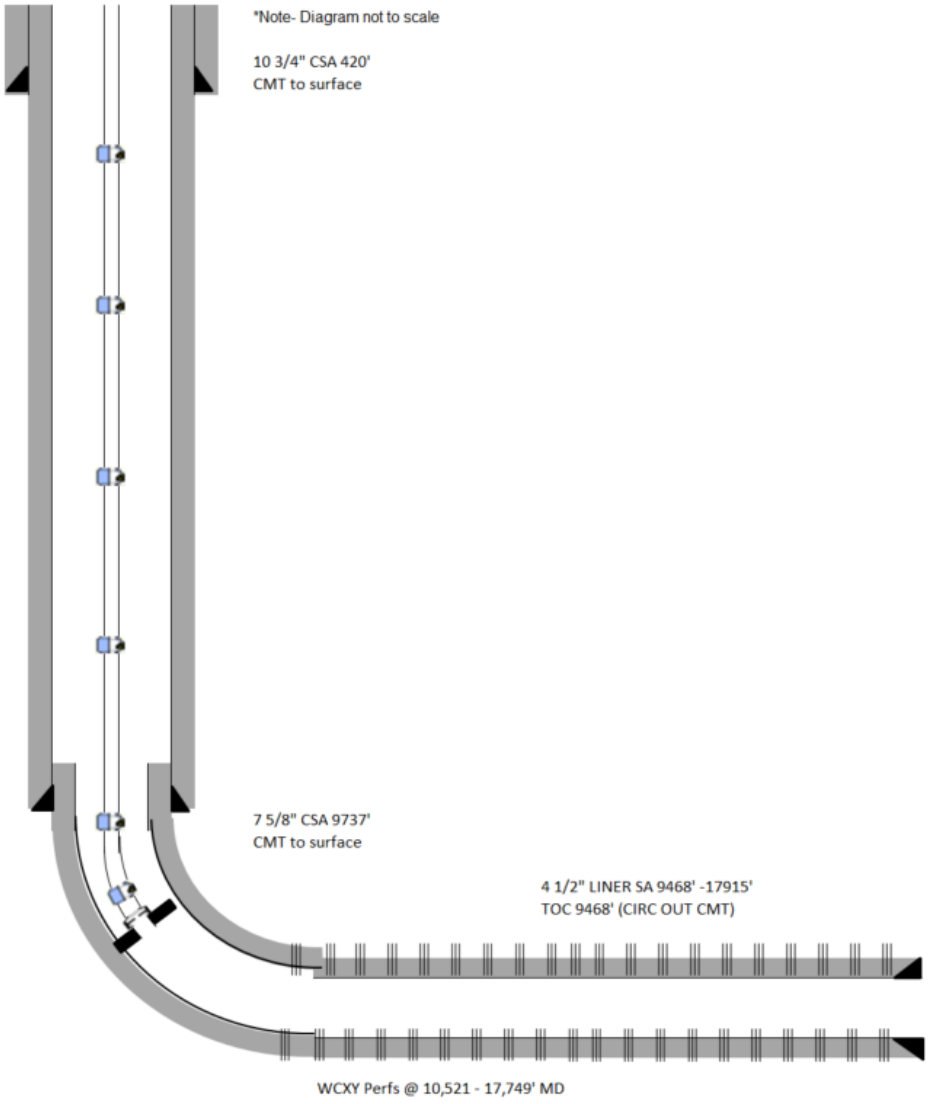
OPERATOR: OXY USA INC.

WELL NAME & NUMBER: CEDAR CANYON 23 FEDERAL COM #33H API 30-015-44074

WELL LOCATION: 2344' FSL, 1199' FEL | I | 22 | 24S | 29E

FOOTAGE LOCATION | UNIT LETTER | SECTION | TOWNSHIP | RANGE

WELLBORE SCHEMATIC



WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 14.75" Casing Size: 10.75"

Cemented with: 350 sx. *or* _____ ft^3

Top of Cement: SURFACE Method Determined: CIRC

Intermediate Casing

Hole Size: 9.875" Casing Size: 7.625"

Cemented with: 1370 sx. *or* _____ ft^3

Top of Cement: SURFACE Method Determined: CIRC

Production Casing

Hole Size: 6.75" Casing Size: 4.5"

Cemented with: 765 sx. *or* _____ ft^3

Top of Cement: 9468' Method Determined: CIRC

Total Depth: 17915' MD / 10327' TVD

Injection Interval

PERFS 10521' MD / 10130' TVD feet to 17749' MD / 10327' TVD

(Perforated or Open Hole; indicate which)

Side 2

INJECTION WELL DATA SHEET

Tubing Size: 2.875" 7.90# L80 BTS6 Lining Material: None

Type of Packer: 5.5" Weatherford 10k AS1X nickel coated packer

Packer Setting Depth: 9400' MD / 9293' TVD

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

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- GAS

2. Name of the Injection Formation: WOLFCAMP

3. Name of Field or Pool (if applicable): PURPLE SAGE WOLFCAMP

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: BONE SPRING 6795'

   UNDERLYING: PENNSYLVANIAN 12180'

Side 1

INJECTION WELL DATA SHEET

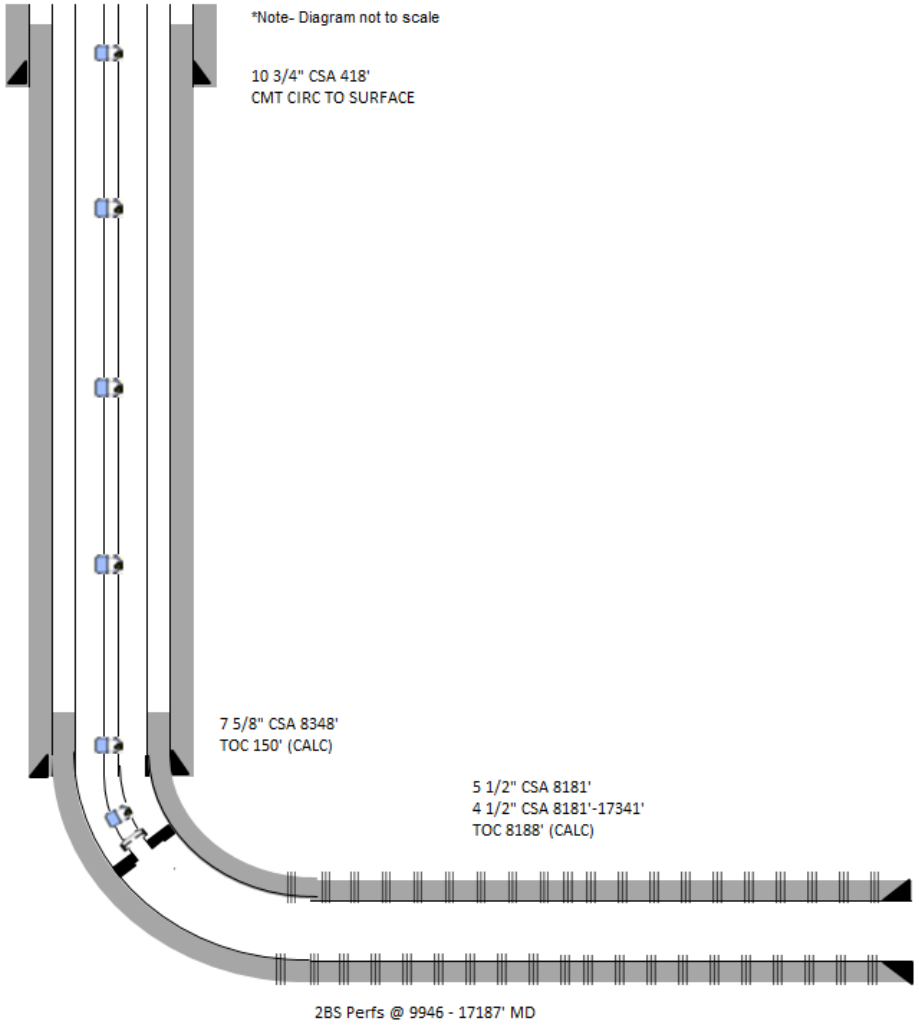
OPERATOR: OXY USA INC.

WELL NAME & NUMBER: CEDAR CANYON 23 FEDERAL COM #6H API 30-015-44095

WELL LOCATION: 2329' FSL, 1173' FEL | I | 22 | 24S | 29E

FOOTAGE LOCATION | UNIT LETTER | SECTION | TOWNSHIP | RANGE

WELLBORE SCHEMATIC



WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 14.75" Casing Size: 10.75"

Cemented with: 350 sx. *or* _____ ft^3

Top of Cement: SURFACE Method Determined: CIRC

Intermediate Casing

Hole Size: 9.875" Casing Size: 7.625"

Cemented with: 1870 sx. *or* _____ ft^3

Top of Cement: 150' Method Determined: CALC

Production Casing

Hole Size: 6.75" Casing Size: 5.5" AND 4.5"

Cemented with: 875 sx. *or* _____ ft^3

Top of Cement: 8188' Method Determined: CALC

Total Depth: 17341' MD / 8974' TVD

Injection Interval

PERFS 9946' MD / 8854' TVD feet to 17187' MD / 8974' TVD

(Perforated or Open Hole; indicate which)

Side 2

INJECTION WELL DATA SHEET

Tubing Size: 2.875" 7.90# L80 BTS6 Lining Material: None

Type of Packer: 5.5" Weatherford 10k AS1X nickel coated packer

Packer Setting Depth: 8100' MD / 8079' TVD

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

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- OIL

2. Name of the Injection Formation: _____

3. Name of Field or Pool (if applicable): PIERCE CROSSING BONE SPRING, EAST

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: BRUSHY CANYON FORMATION (DELAWARE) 5088'

   UNDERLYING: WOLFCAMP FORMATION 10234'

Side 1

INJECTION WELL DATA SHEET

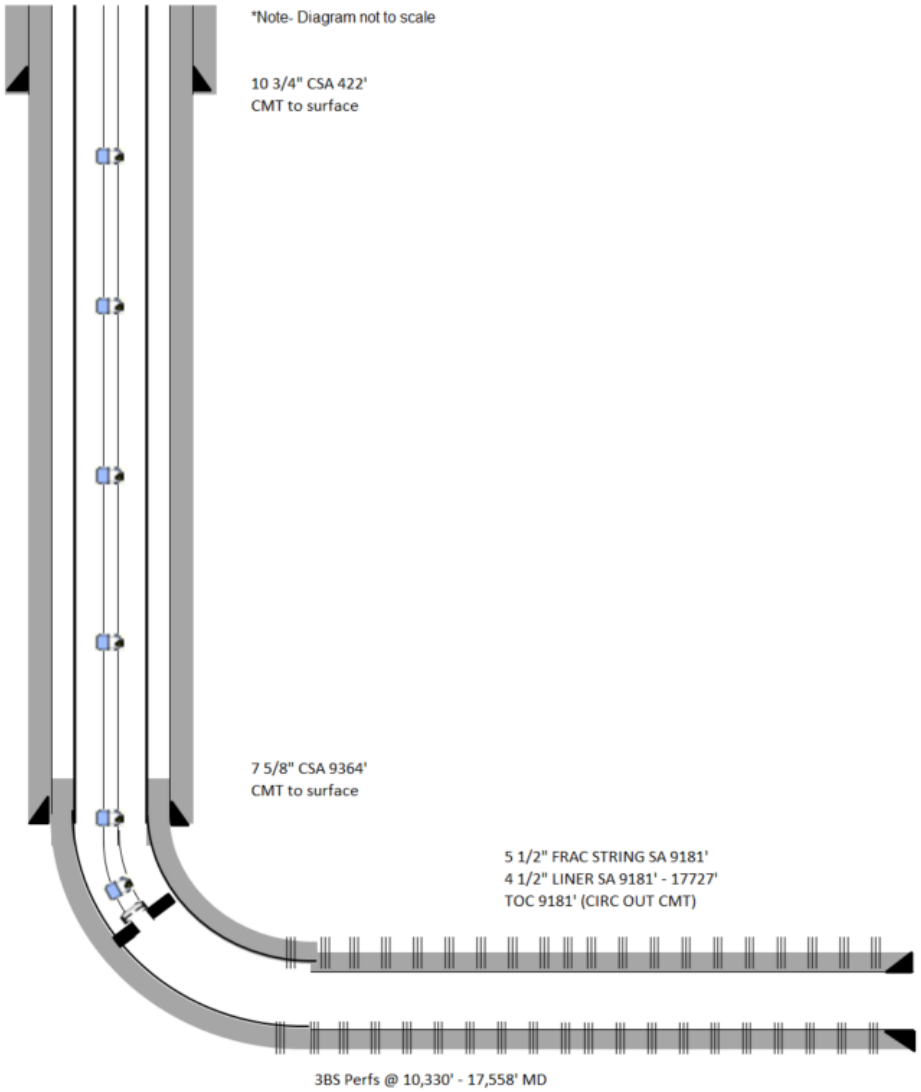
OPERATOR: OXY USA INC.

WELL NAME & NUMBER: CEDAR CANYON 23-24 FEDERAL #31H API 30-015-44179

WELL LOCATION: 491' FNL, 177' FEL | A | 22 | 24S | 29E

FOOTAGE LOCATION | UNIT LETTER | SECTION | TOWNSHIP | RANGE

WELLBORE SCHEMATIC



WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 14.75" Casing Size: 10.75"

Cemented with: 385 sx. *or* _____ ft^3

Top of Cement: SURFACE Method Determined: CIRC

Intermediate Casing

Hole Size: 9.875" Casing Size: 7.625"

Cemented with: 1365 sx. *or* _____ ft^3

Top of Cement: SURFACE Method Determined: CIRC

Production Casing

Hole Size: 6.75" Casing Size: 5.5" AND 4.5"

Cemented with: 815 sx. *or* _____ ft^3

Top of Cement: 9181' Method Determined: CIRC

Total Depth: 17727' MD / 10158' TVD

Injection Interval

PERFS 10330' MD / 9971' TVD feet to 17558' MD / 10158' TVD

(Perforated or Open Hole; indicate which)

Side 2

INJECTION WELL DATA SHEET

Tubing Size: 2.875" 7.90# L80 BTS6 Lining Material: None

Type of Packer: 4.5" Weatherford 10k AS1X nickel coated packer

Packer Setting Depth: 9683' MD / 9670' TVD

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

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- OIL

2. Name of the Injection Formation: BONE SPRING

3. Name of Field or Pool (if applicable): PIERCE CROSSING BONE SPRING, EAST

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: BRUSHY CANYON FORMATION (DELAWARE) 5187'

   UNDERLYING: WOLFCAMP FORMATION 10234'

Side 1

INJECTION WELL DATA SHEET

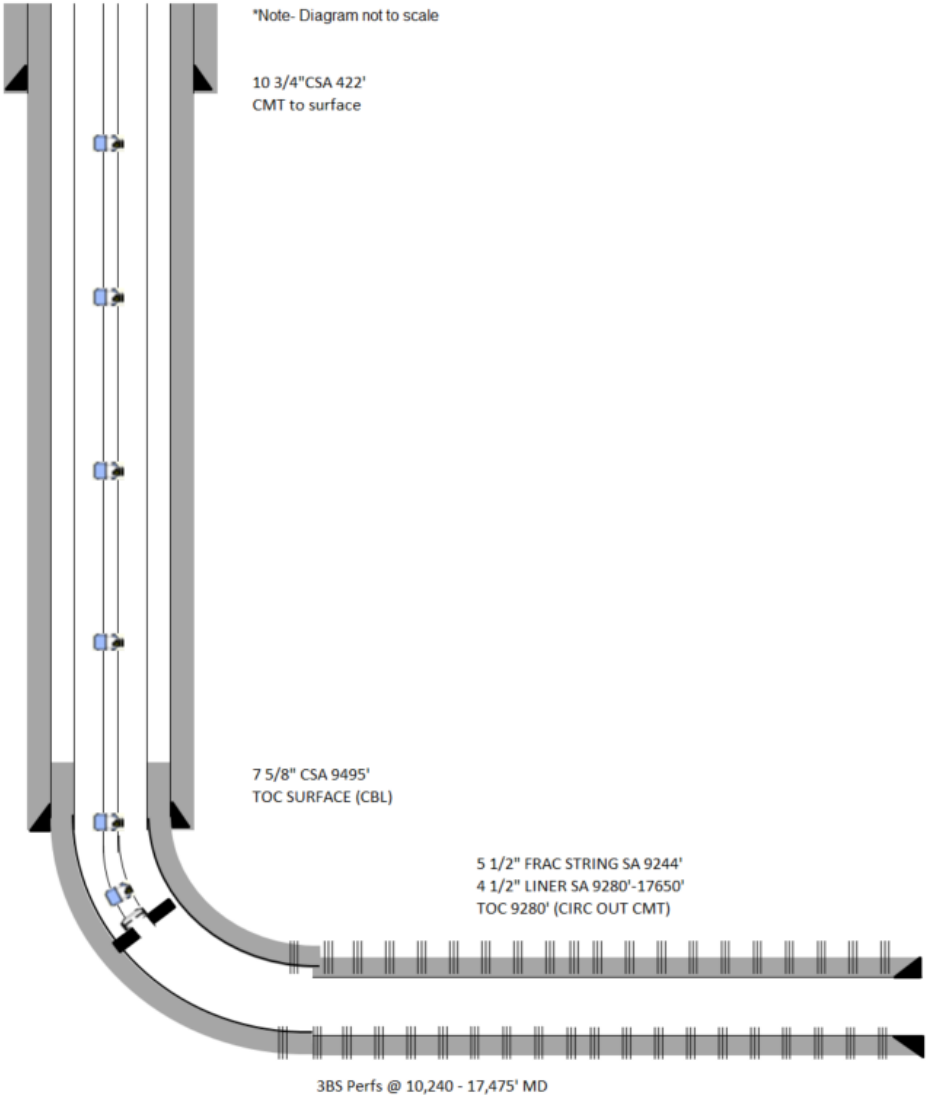
OPERATOR: OXY USA INC.

WELL NAME & NUMBER: CEDAR CANYON 23-24 FEDERAL #32H API 30-015-44180

WELL LOCATION: 520' FNL, 172' FEL | A | 22 | 24S | 29E

FOOTAGE LOCATION | UNIT LETTER | SECTION | TOWNSHIP | RANGE

WELLBORE SCHEMATIC



WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 14.75" Casing Size: 10.75"

Cemented with: 385 sx. *or* _____ ft^3

Top of Cement: 0 Method Determined: CIRC

Intermediate Casing

Hole Size: 9.875" Casing Size: 7.625"

Cemented with: 1600 sx. *or* _____ ft^3

Top of Cement: SURFACE Method Determined: CBL

Production Casing

Hole Size: 6.75" Casing Size: 5.5" AND 4.5"

Cemented with: 790 sx. *or* _____ ft^3

Top of Cement: 9280 Method Determined: CIRC

Total Depth: 17650' MD / 10169' TVD

Injection Interval

PERFS 10240' MD / 9917' TVD feet to 17475' MD / 10169' TVD

(Perforated or Open Hole; indicate which)

Side 2

INJECTION WELL DATA SHEET

Tubing Size: 2.875" 7.90# L80 BTS6 Lining Material: None

Type of Packer: 4.5" Weatherford 10k AS1X nickel coated packer

Packer Setting Depth: 9778' MD / 9617' TVD

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

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- OIL

2. Name of the Injection Formation: BONE SPRING

3. Name of Field or Pool (if applicable): PIERCE CROSSING BONE SPRING, EAST

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: BRUSHY CANYON FORMATION (DELAWARE) 5217'

   UNDERLYING: WOLFCAMP FORMATION: 10234'

Side 1

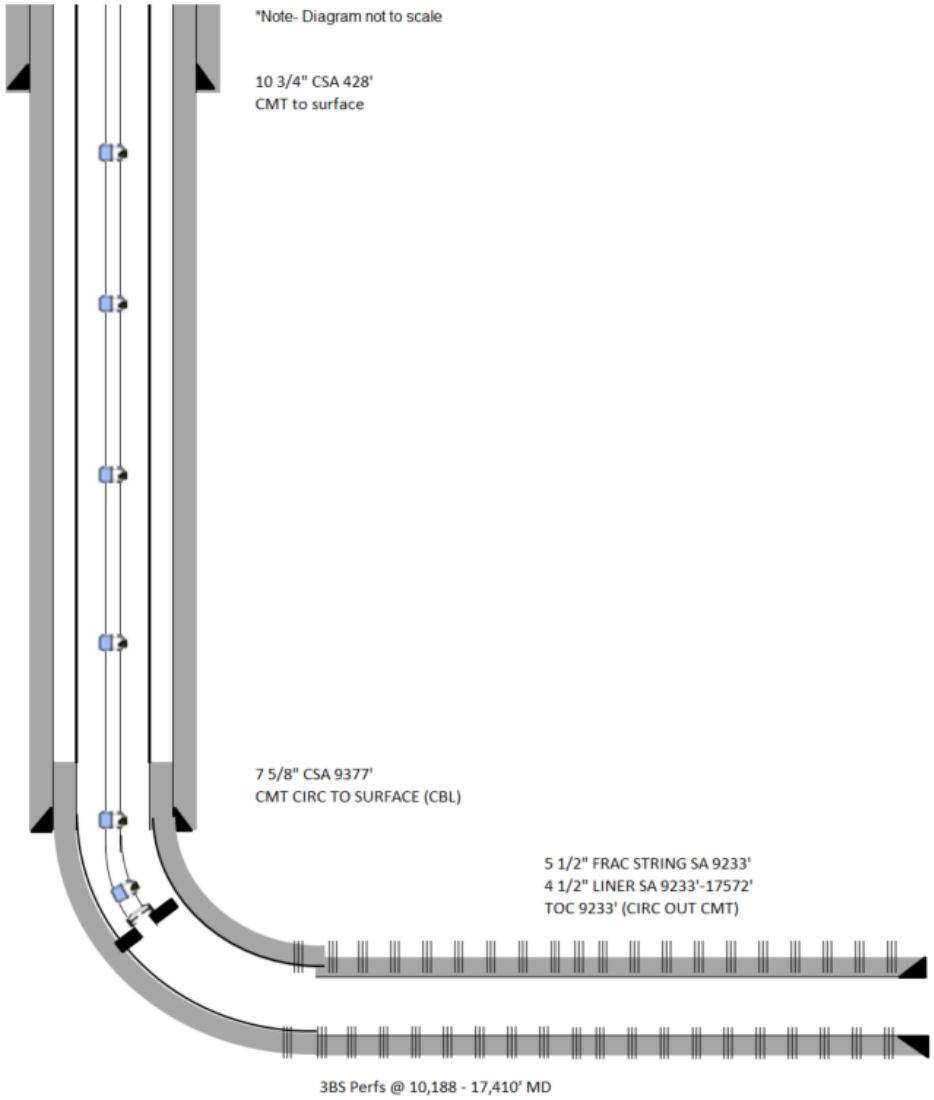
INJECTION WELL DATA SHEET

OPERATOR: OXY USA INC.

WELL NAME & NUMBER: CEDAR CANYON 23-24 FEDERAL COM #34H API 30-015-44178

WELL LOCATION:	319' FSL, 88' FWL	M	23	24S	29E
	FOOTAGE LOCATION	UNIT LETTER	SECTION	TOWNSHIP	RANGE

WELLBORE SCHEMATIC



WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 14.75" Casing Size: 10.75"

Cemented with: 329 sx. ***or*** _____ ft^3

Top of Cement: SURFACE Method Determined: CIRC

Intermediate Casing

Hole Size: 9.875" Casing Size: 7.625"

Cemented with: 1656 sx. ***or*** _____ ft^3

Top of Cement: SURFACE Method Determined: CBL

Production Casing

Hole Size: 6.75" Casing Size: 5.5" AND 4.5"

Cemented with: 1028 sx. ***or*** _____ ft^3

Top of Cement: 9233' Method Determined: CIRC

Total Depth: 17575' MD / 10117' TVD

Injection Interval

PERFS 10188' MD / 9925' TVD feet to 17410' MD / 10117' TVD

(Perforated or Open Hole; indicate which)

Side 2

INJECTION WELL DATA SHEET

Tubing Size: 2.875" 7.90# L80 BTS6 Lining Material: None

Type of Packer: 5.5" Weatherford 10k AS1X nickel coated packer

Packer Setting Depth: 9633' MD / 9580' TVD

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

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- OIL

2. Name of the Injection Formation: BONE SPRING

3. Name of Field or Pool (if applicable): PIERCE CROSSING BONE SPRING, EAST

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: BRUSHY CANYON FORMATION (DELWARE) 5200'

   UNDERLYING: WOLFCAMP FORMATION 10234'

Side 1

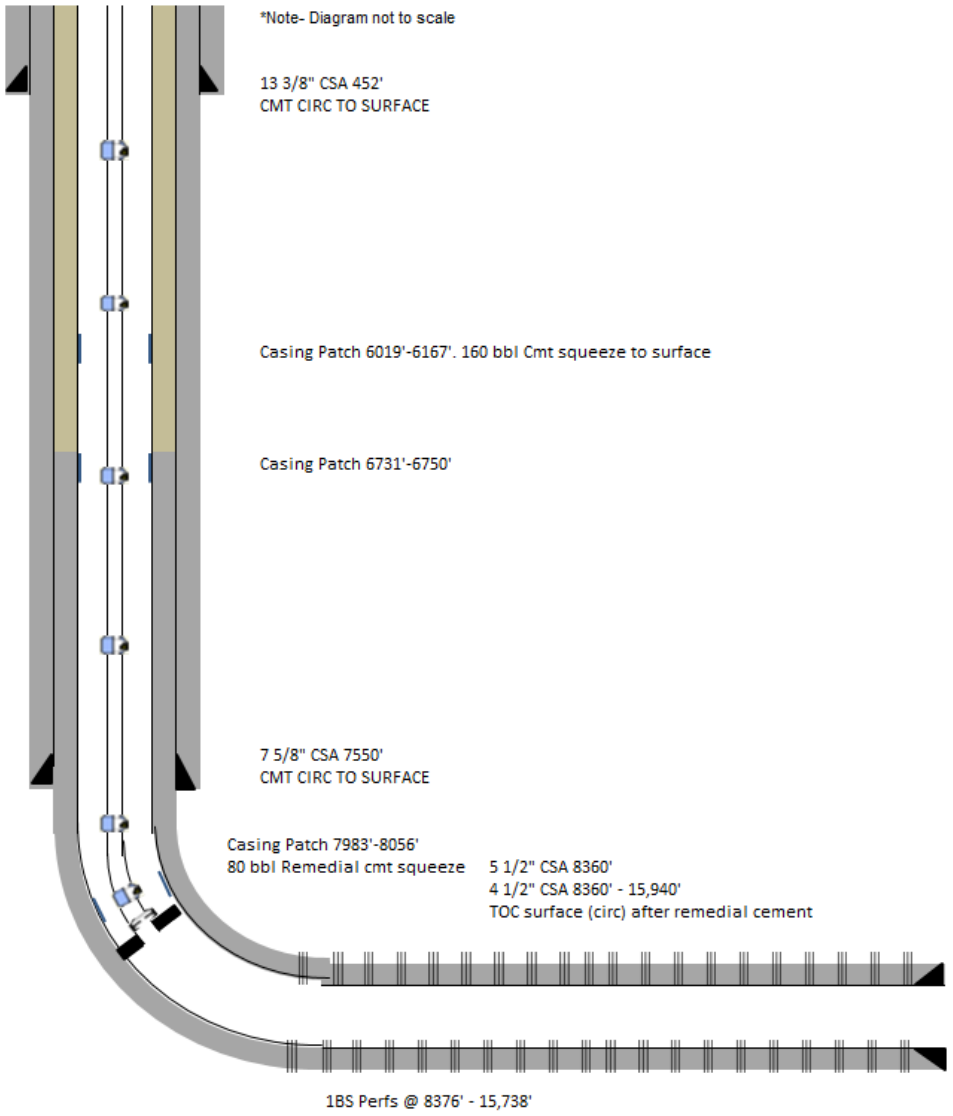
INJECTION WELL DATA SHEET

OPERATOR: OXY USA INC.

WELL NAME & NUMBER: GUACAMOLE CC 24-23 FED #11H API 30-015-45870

WELL LOCATION:	1290' FNL, 2490' FWL	C	24	24S	29E
	FOOTAGE LOCATION	UNIT LETTER	SECTION	TOWNSHIP	RANGE

WELLBORE SCHEMATIC



WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 17.5" Casing Size: 13.375"

Cemented with: 590 sx. ***or*** _____ ft^3

Top of Cement: SURFACE Method Determined: CIRC

Intermediate Casing

Hole Size: 9.875" Casing Size: 7.625"

Cemented with: 1269 sx. ***or*** _____ ft^3

Top of Cement: SURFACE Method Determined: CIRC

Production Casing

Hole Size: 6.75" Casing Size: 5.5" AND 4.5"

Cemented with: 2054 sx. ***or*** _____ ft^3

Top of Cement: SURFACE Method Determined: CIRC

Total Depth: 15940' MD / 8081' TVD

Injection Interval

PERFS 8376' MD / 8218' TVD feet to 15738' MD / 8081' TVD

(Perforated or Open Hole; indicate which)

Side 2

INJECTION WELL DATA SHEET

Tubing Size: 2.875" 7.90# L80 BTS6 Lining Material: None

Type of Packer: 5.5" Weatherford 10k AS1X nickel coated packer

Packer Setting Depth: 8085' MD / 8037' TVD

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

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- OIL

2. Name of the Injection Formation: BONE SPRING

3. Name of Field or Pool (if applicable): PIERCE CROSSING BONE SPRING, EAST

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: BRUSHY CANYON FORMATION (DELAWARE) 5471'

   UNDERLYING: WOLFCAMP FORMATION 10234'

Side 1

INJECTION WELL DATA SHEET

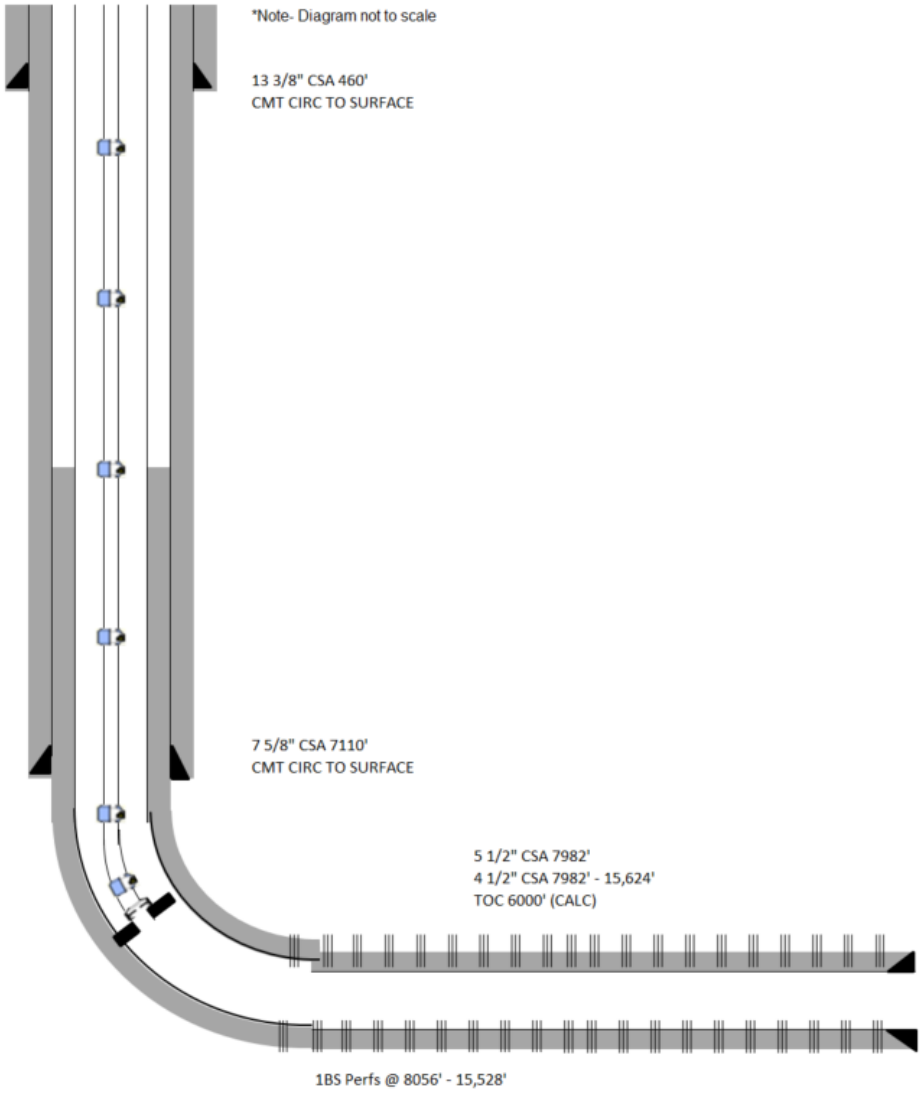
OPERATOR: OXY USA INC.

WELL NAME & NUMBER: GUACAMOLE CC 24-23 FED #12H API 30-015-45871

WELL LOCATION: 1395' FNL, 2490' FWL | F | 24 | 24S | 29E

FOOTAGE LOCATION | UNIT LETTER | SECTION | TOWNSHIP | RANGE

WELLBORE SCHEMATIC



WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 17.5" Casing Size: 13.375"

Cemented with: 620 sx. ***or*** _____ ft^3

Top of Cement: SURFACE Method Determined: CIRC

Intermediate Casing

Hole Size: 9.875" Casing Size: 7.625"

Cemented with: 1139 sx. ***or*** _____ ft^3

Top of Cement: SURFACE Method Determined: CIRC

Production Casing

Hole Size: 6.7" Casing Size: 5.5" AND 4.5"

Cemented with: 1014 sx. ***or*** _____ ft^3

Top of Cement: 6000' Method Determined: CALC

Total Depth: 15624' MD / 7741' TVD

Injection Interval

PERFS 8056' MD / 7862' TVD feet to 15528' MD / 7741' TVD

(Perforated or Open Hole; indicate which)

Side 2

INJECTION WELL DATA SHEET

Tubing Size: 2.875" 7.90# L80 BTS6 Lining Material: None

Type of Packer: 5.5" Weatherford 10k AS1X nickel coated packer

Packer Setting Depth: 7713' MD / 7670' TVD

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

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- OIL

2. Name of the Injection Formation: BONE SPRING

3. Name of Field or Pool (if applicable): PIERCE CROSSING BONE SPRING, EAST

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. _____

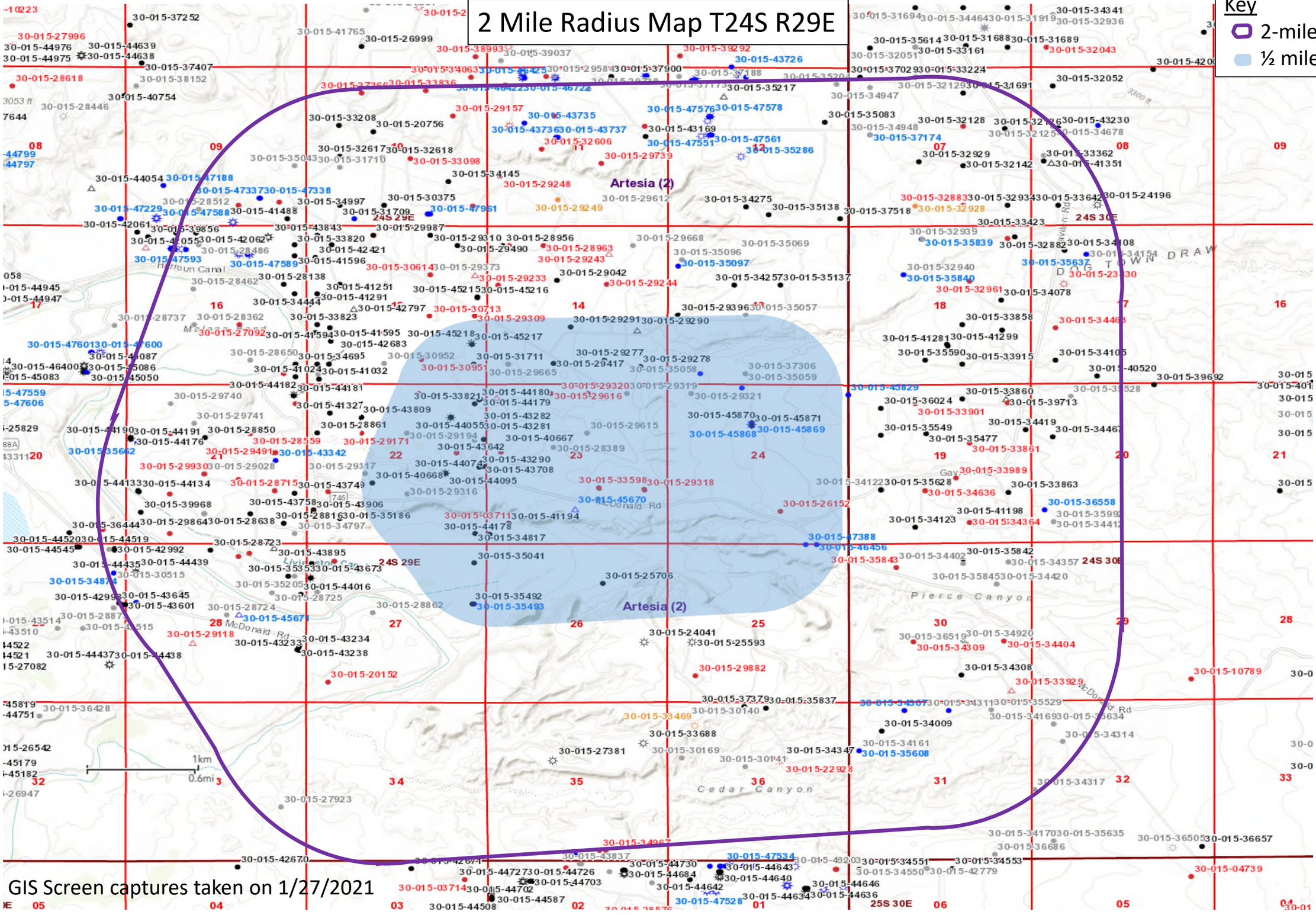
   NO

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

   OVERLYING: BRUSHY CANYON FORMATION (DELAWARE) 5464'

   UNDERLYING: WOLFCAMP FORMATION 10234'

2 Mile Radius Map T24S R29E



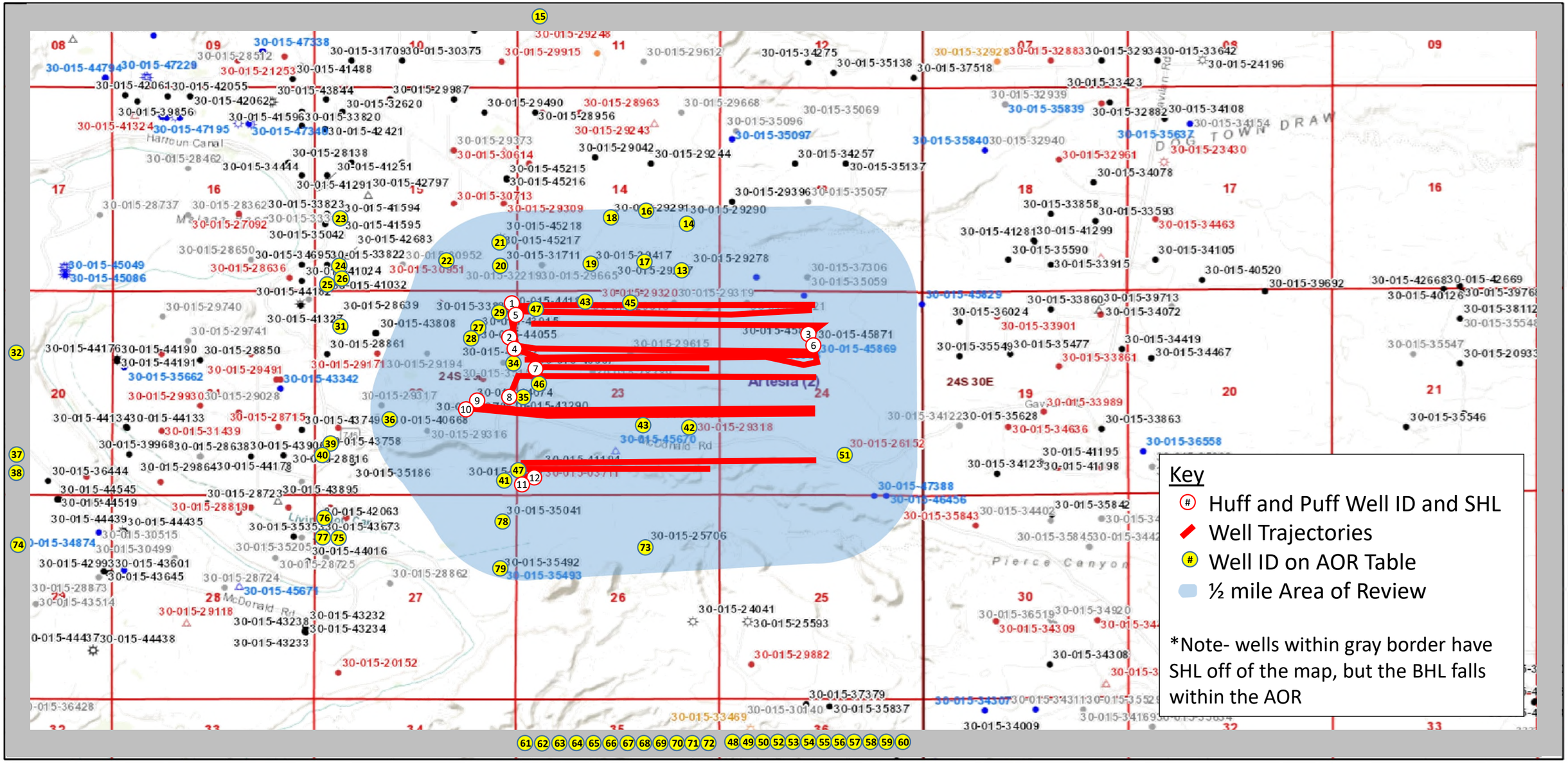
Key

- 2-mile Radius
- ½ mile Area of Review

Salt Water Injection, New
Salt Water Injection, Plugged
Salt Water Injection, Temporarily Abandoned
Water, Active
Water, Cancelled
Water, New
Oil, Cancelled
Oil, New
Oil, Plugged
Oil, Temporarily Abandoned
Salt Water Injection, Active
Salt Water Injection, Cancelled
Injection, Active
Injection, Cancelled
Injection, New
Injection, Plugged
Injection, Temporarily Abandoned
Oil, Active
CO2, Temporarily Abandoned
Gas, Active
Gas, Cancelled
Gas, New
Gas, Plugged
Gas, Temporarily Abandoned
Wells - Large Scale
undefined
Miscellaneous
CO2, Active
CO2, Cancelled
CO2, New
CO2, Plugged

GIS Screen captures taken on 1/27/2021

AOR Map T24S R29E



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Wells - Large Scale

- undefined
- Miscellaneous
- CO2, Active
- CO2, Cancelled
- CO2, New
- CO2, Plugged
- CO2, Temporarily Abandoned
- Gas, Active
- Gas, Cancelled
- Gas, New
- Gas, Plugged
- Gas, Temporarily Abandoned
- Injection, Active
- Injection, Cancelled
- Injection, New
- Injection, Plugged
- Injection, Temporarily Abandoned
- Oil, Active
- Oil, Cancelled
- Oil, New
- Oil, Plugged
- Oil, Temporarily Abandoned
- Salt Water Injection, Active
- Salt Water Injection, Cancelled
- Salt Water Injection, New
- Salt Water Injection, Plugged
- Salt Water Injection, Temporarily Abandoned
- Water, Active
- Water, Cancelled
- Water, New

1:36,112

0 0.35 0.7 1.4 mi

0 0.5 1 2 km

Oil Conservation Division of the New Mexico Energy, Minerals and Natural Resources Department., Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI,

New Mexico Oil Conservation Division

NM OCD Oil and Gas Map. http://nm-emnrd.maps.arcgis.com/apps/webappviewer/index.html?id=4d017f2306164de29fd2fb9f8f35ca75: New Mexico Oil Conservation Division

Well ID	API NUMBER	Current Operator	LEASE NAME	WELL NUMBER	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 [ft]	Measured Depth [ft]	HOLE SIZE [in]	CSG SIZE [in]	SET AT [ft]	SX CMT	CMT TO [ft]	HOW MEASURED	Current Completion [ft]	Comment	Current Producing Pool
1	30-015-44179	] OXY USA INC	CEDAR CANYON 23 24 FEDERAL	031H	Oil	Active	491	N	177	E	A	22	24S	29E	6/18/2017	10160	17742	14.750	10.750	422	385	Surf	Circ	10330-17558	5.5" frac string. Top of 4.5" liner 9181'	[96473] PIERCE CROSSING; BONE SPRING, EAST
																		9.875	7.625	9364	1365	Surf	Circ			
																		6.750	5.500	9181	NA	NA	NA			
																		6.750	4.500	17727	815	9181	Circ			
2	30-015-43282	] OXY USA INC	CEDAR CANYON 23 FEDERAL	005H	Oil	Active	1305	N	155	E	A	22	24S	29E	11/26/2015	9012	16385	14.750	10.750	444	550	Surf	Circ	9166-16263		[96473] PIERCE CROSSING; BONE SPRING, EAST
																		9.875	7.625	7675	1570	Surf	Circ			
																		6.750	5.500	9104	1110	3380	CBL			
																		6.750	4.500	16370	1110	3380	CBL			
3	30-015-45870	] OXY USA INC	GUACAMOLE CC 24 23 FEDERAL	011H	Oil	Active	1290	N	2490	W	C	24	24S	29E	6/7/2019	8082	15960	17.500	13.375	452	590	Surf	Circ	8376-15738		[96473] PIERCE CROSSING; BONE SPRING, EAST
																		9.875	7.625	7550	1269	Surf	Circ			
																		6.750	5.500	8360	2054	6300	CALC			
																		6.750	4.500	15940	2054	6300	CALC			
4	30-015-43281	] OXY USA INC	CEDAR CANYON 23 FEDERAL	004H	Inj	Active	1415	N	155	E	H	22	24S	29E	11/26/2015	9006	16535	14.750	10.750	444	550	Surf	Circ	9312-16403		[96473] PIERCE CROSSING; BONE SPRING, EAST
																		9.875	7.625	7490	4000	Surf	Circ			
																		6.750	5.500	8945	1090	6330	CBL			
																		6.750	4.500	16509	1090	6330	CBL			
5	30-015-44180	] OXY USA INC	CEDAR CANYON 23 24 FEDERAL	032H	Oil	Active	520	N	172	E	A	22	24S	29E	6/19/2017	10169	17665	14.750	10.750	422	385	Surf	Circ	10240-17475	5.5" frac string. Top of 4.5" liner 9244'	[96473] PIERCE CROSSING; BONE SPRING, EAST
																		9.875	7.625	9495	1600	Surf	Circ			
																		6.750	5.500	9244	NA	NA	NA			
																		6.750	4.500	17650	790	Surf	Circ			
6	30-015-45871	] OXY USA INC	GUACAMOLE CC 24 23 FEDERAL	012H	Oil	Active	1395	N	2490	W	F	24	24S	29E	5/4/2019	7741	15650	17.500	13.375	460	620	Surf	Circ	8056-15528		[96473] PIERCE CROSSING; BONE SPRING, EAST
																		9.875	7.625	7110	1139	Surf	Circ			
																		6.750	5.500	7982	1014	6000	CALC			
																		6.750	4.500	15624	1014	6000	CALC			
7	30-015-40667	] OXY USA INC	CEDAR CANYON 23	001H	Oil	Active	2068	N	483	W	E	23	24S	29E	10/1/2012	7886	11968	17.500	13.375	447	650	Surf	Circ	8190-11782		[96238] CORRAL DRAW; BONE SPRING
																		12.250	9.625	3146	1850	Surf	Circ			
																		8.500	5.500	11945	3000	1850	CBL			
8	30-015-43290	] OXY USA INC	CEDAR CANYON 23 FEDERAL	003H	Oil	Active	2540	S	200	E	I	22	24S	29E	10/26/2016	9010	16430	14.750	10.750	482	382	Surf	Circ	9016-16282		[96473] PIERCE CROSSING; BONE SPRING, EAST
																		9.875	7.625	8221	3238	Surf	Circ			
																		6.750	5.500	8962	830	8962	Circ			
																		6.750	4.500	16419	830	8962	Circ			
9	30-015-44074	] OXY USA INC	CEDAR CANYON 23 FEDERAL COM	033H	Gas	Active	2344	S	1199	E	I	22	24S	29E	4/29/2017	10329	17935	14.750	10.750	420	350	Surf	Circ	10521-17749	Top of 4.5" liner 9468'	[98220] PURPLE SAGE; WOLFCAMP (GAS)
																		9.875	7.625	9737	1370	Surf	Circ			
																		6.750	4.500	17915	765	9468	Circ			
10	30-015-44095	] OXY USA INC	CEDAR CANYON 23 FEDERAL COM	006H	Oil	Active	2329	S	1173	E	I	22	24S	29E	4/30/2017	8974	17351	14.750	10.750	418	350	Surf	Circ	9946-17187		[96473] PIERCE CROSSING; BONE SPRING, EAST
																		9.875	7.625	8348	1870	Surf	Circ			
																		6.750	5.500	8181	875	8188	Calc			
																		6.750	4.500	17341	875	8188	Calc			
11	30-015-44178	] OXY USA INC	CEDAR CANYON 23 24 FEDERAL COM	034H	Oil	Active	319	S	88	W	M	23	24S	29E	7/5/2017	10119	17582	14.750	10.750	428	329	Surf	Circ	10188-17410	5.5" frac string. Top of 4.5" liner 9233'	[96473] PIERCE CROSSING; BONE SPRING, EAST
																		9.875	7.625	9377	1656	Surf	Circ			
																		6.750	5.500	9233	NA	NA	NA			
																		6.750	4.500	17572	1028	9233	Circ			
12	30-015-41194	] OXY USA INC	CEDAR CANYON 23	002H	Oil	Active	650	S	660	W	M	23	24S	29E	8/17/2014	8902	13430	14.750	11.375	467	721	Surf	Circ	8610-13220		[50371] PIERCE CROSSING; BONE SPRING
																		10.625	8.625	3020	1120	Surf	Circ			
																		7.875	5.500	13421	1360	3322	CBL			
13	30-015-29278	] SHACKELFORD OIL CO	ORE IDA 14 FEDERAL	009	Oil	Active	560	S	760	E	P	14	24S	29E	4/6/1997	8350	8350	17.500	13.375	357	535	Surf	Circ	7923-8098		[96473] PIERCE CROSSING; BONE SPRING, EAST
																		12.250	8.625	3134	1220	Surf	Circ			
																		7.875	5.500	8350	610	Surf	Circ			
14	30-015-29290	] DEVON ENERGY PRODUCTION COMPANY, LP	ORE IDA 14 FEDERAL	010	SWD	Active	1780	S	860	E	I	14	24S	29E	1/28/1997	8354	8354	17.500	13.375	362	525	Surf	Circ	3210-3618		[96769] SWD; BELL CANYON
																		12.250	8.625	3141	1275	Surf	Circ			
																		7.875	7.875	8250	1000	Surf	Circ			
15	30-015-43169	] DEVON ENERGY PRODUCTION COMPANY, LP	NEW POTATO 11 FEDERAL COM	001H	Oil	Active	2324	N	641	E	E	11	24S	29E	6/23/2015	8903	16576	17.500	13.375	538	555	Surf	Circ	9350-16505		[11520] CEDAR CANYON; BONE SPRING
																		12.250	9.625	3113	1060	Surf	Circ			
																		8.750	5.500	16576	3515	3458	CBL			
16	30-015-29306	] DEVON ENERGY PRODUCTION COMPANY, LP	ORE IDA 14 FEDERAL	007	Oil	PA	2180	S	1780	E	J	14	24S	29E	1/28/1997	8354	8354	17.500	13.375	376	525	Surf	Circ	NA		NA
																		12.250	8.625	3124	1275	Surf	Circ			
																		7.875	5.500	8354	1000	Surf	Circ			
17	30-015-29277	] SHACKELFORD OIL CO	ORE IDA 14 FEDERAL	008	Oil	Active	760	S	1830	E	O	14	24S	29E	1/9/1997	8340	8340	17.500	13.375	355	750	Surf	Circ	6432-6672		[11540] CEDAR CANYON; DELAWARE
																		12.250	8.625	3127	1250	Surf	Circ			
																		7.875	5.500	8340	1180	Surf	Circ			
18	30-015-29291	] SHACKELFORD OIL CO	ORE IDA 14 FEDERAL	012	Oil	Active	1880	S	2480	W	K	14	24S	29E	3/17/1997	8332	8332	17.500	13.375	377	425	Surf	Circ	7815-7899		[96473] PIERCE CROSSING; BONE SPRING, EAST
																		12.250	8.625	3075	800	Surf	Circ			
																		7.875	5.500	8335	1150	Surf	Circ			
19	30-015-29417	] SHACKELFORD OIL CO	ORE IDA 14 FEDERAL	013	Oil	Active	660	S	1980	W	N	14	24S	29E	4/8/1997	8350	8350	13.375	13.375	354	185	Surf	Circ	7841-8019		[96473] PIERCE CROSSING; BONE SPRING, EAST
																		8.625	8.625	3066	300	Surf	Circ			
																		5.500	5.500	8350	910	5502	Calc			
20	30-015-31711	] OXY USA INC	HARROUN 15	013	Oil	PA	660	S	360	E	P	15	24S	29E	6/19/2001	8020	8020	13.375	13.375	580	1070	Surf	Circ	NA		NA
																		8.625	8.625	2915	1050	Surf	Circ			

																		5.500	5.500	8020	1830	1900	Calc			
21	30-015-45217	] OXY USA INC	REFRIED BEANS CC 15 16 STATE COM	014H	Oil	Active	1330	S	420	E	I	15	24S	29E	10/13/2018	7834	16820	14.750	10.750	455	600	Surf	Circ	8027-16731	[96473] PIERCE CROSSING; BONE SPRING, EAST
																		9.875	7.625	7304	1475	Surf	Circ		
																		6.750	5.500	16809	620	6804	Calc		
22	30-015-45218	] OXY USA INC	WHOMPING WILLOW CC 15 16 STATE COM	044H	Gas	Active	1365	S	420	E	I	15	24S	29E	10/12/2018	10844	21170	14.750	10.750	455	600	Surf	Circ	10512-20714	[98220] PURPLE SAGE; WOLFCAMP (GAS)
																		9.875	7.875	10445	1135	Surf	Circ		
																		6.750	5.500	21152	1500	8015	CBL		
23	30-015-30951	] OXY USA INC	HARROUN 15	011	Oil	PA	800	S	1900	E	O	15	24S	29E	8/4/2000	6890	6890	14.750	10.750	563	545	Surf	Circ	NA	NA
																		9.875	7.625	2930	800	Surf	Circ		
																		6.750	4.500	6890	1115	3234	CBL		
24	30-015-41594	] OXY USA INC	CEDAR CANYON 15	003H	Oil	Active	1888	S	700	W	L	15	24S	29E	6/14/2014	8810	13180	14.750	11.750	390	550	Surf	Circ	9152-13041	[96473] PIERCE CROSSING; BONE SPRING, EAST
																		10.625	8.625	3125	890	Surf	Circ		
																		7.875	5.500	13177	1300	478	CBL		
25	30-015-33822	] OXY USA INC	HARROUN 15	017	Oil	Active	660	S	330	W	M	15	24S	29E	7/9/2006	10887	10887	17.500	13.375	315	580	Surf	Circ	8405-10740	[96473] PIERCE CROSSING; BONE SPRING, EAST
																		12.250	9.625	2880	1000	Surf	Circ		
																		8.500	5.500	10887	2005	3940	CBL		
26	30-015-41032	] OXY USA INC	CEDAR CANYON 15	002H	Oil	Active	170	S	360	W	M	15	24S	29E	2/23/2013	8795	12960	14.750	11.750	334	280	Surf	Circ	8900-12800	[96473] PIERCE CROSSING; BONE SPRING, EAST
																		10.625	8.625	3101	840	Surf	Circ		
																		7.875	5.500	12960	1450	2960	CBL		
27	30-015-44055	] OXY USA INC	CEDAR CANYON 22 15 FEDERAL COM	034H	Oil	Active	1107	N	1022	E	A	22	24S	29E	3/8/2017	9970	16100	14.750	10.750	441	625	Surf	Circ	9980-15931	Top of 4.5" liner 9355'	[96473] PIERCE CROSSING; BONE SPRING, EAST
																		9.875	7.625	9481	1350	Surf	Circ		
																		6.750	4.500	16091	660	9355	Circ		
28	30-015-43915	] OXY USA INC	CEDAR CANYON 22 15 FEE	033H	Gas	Active	1107	N	1052	E	A	22	24S	29E	3/6/2017	10090	16336	14.750	10.750	438	665	Surf	Circ	10252-16170	Top of 4.5" liner 9383'	[98220] PURPLE SAGE; WOLFCAMP (GAS)
																		9.875	7.625	9516	2540	10	TS		
																		6.750	4.500	16326	670	9383	Circ		
29	30-015-33821	] OXY USA INC	HARROUN 22	003	Oil	Active	660	N	330	E	A	22	24S	29E	1/19/2006	6750	10864	17.500	13.375	506	450	Surf	Circ	7863-10720	[96473] PIERCE CROSSING; BONE SPRING, EAST
																		12.250	9.625	2914	1100	Surf	Circ		
																		8.5 & 7.875	5.500	10819	2150	4670	CBL		
31	30-015-41327	] OXY USA INC	CEDAR CANYON 22	002H	Oil	Active	990	N	690	W	D	22	24S	29E	6/8/2013	8813	12685	14.750	11.750	389	415	Surf	Circ	8920-12520	[96473] PIERCE CROSSING; BONE SPRING, EAST
																		10.625	8.625	3105	960	Surf	Circ		
																		7.875	5.500	12678	1400	2995	CBL		
32	30-015-44176	] OXY USA INC	CEDAR CANYON 21 22 FEDERAL COM	032H	Gas	Active	1794	N	141	W	E	21	24S	29E	8/9/2017	9979	19940	17.500	13.375	451	580	Surf	Circ	9920-19771	[96473] PIERCE CROSSING; BONE SPRING, EAST
																		12.250	9.625	9260	2707	Surf	Circ		
																		8.500	5.500	19936	2619	8270	Calc		
34	30-015-43642	] OXY USA INC	CEDAR CANYON 22 FEDERAL	021H	Oil	Active	2540	S	230	E	I	22	24S	29E	10/25/2016	8817	13620	14.750	10.750	482	382	Surf	Circ	8887-13471	[96473] PIERCE CROSSING; BONE SPRING, EAST
																		9.875	7.625	8300	2627	Surf	Circ		
																		6.750	5.500	8782	830	5250	CBL		
																		6.750	4.500	13610	830	5250	CBL		
35	30-015-43708	] OXY USA INC	CEDAR CANYON 22 FEDERAL COM	004H	Oil	Active	2540	S	260	E	I	22	24S	29E	10/25/2016	8728	13435	14.750	10.750	488	382	Surf	Circ	8827-13265	[96473] PIERCE CROSSING; BONE SPRING, EAST
																		9.875	7.625	8197	2886	Surf	Circ		
																		6.750	5.500	8848	500	6630	CBL		
																		6.750	4.500	13424	500	6630	CBL		
36	30-015-40668	] OXY USA INC	CEDAR CANYON 22	001H	Oil	Active	1980	S	1980	W	K	22	24S	29E	10/27/2012	7905	11885	17.500	13.375	465	540	Surf	Circ	8240-11692	[96238] CORRAL DRAW; BONE SPRING
																		12.250	9.625	3260	1910	Surf	Circ		
																		8.500	5.500	11870	1760	2440	CBL		
37	30-015-44133	] OXY USA INC	CEDAR CANYON 21 22 FEDERAL COM	033H	Oil	Active	1754	S	374	W	L	21	24S	29E	5/10/2017	10002	19951	17.500	13.375	542	633	Surf	Circ	9908-19667	Top of 5.5" liner 8918'	[96473] PIERCE CROSSING; BONE SPRING, EAST
																		12.250	9.625	9183	2235	1305	TS		
																		8.500	5.500	19842	1730	8918	Circ		
38	30-015-44134	] OXY USA INC	CEDAR CANYON 21 22 FEDERAL COM	034H	Oil	Active	1737	S	399	W	L	21	24S	29E	5/9/2017	9997	19980	17.500	13.375	540	617	Surf	Circ	9978-19797	Top of 5.5" liner 9115'	[96473] PIERCE CROSSING; BONE SPRING, EAST
																		12.250	9.625	9242	2335	Surf	Circ		
																		8.500	5.500	19968	1735	9115	Circ		
39	30-015-43758	] OXY USA INC	CEDAR CANYON 22 FEDERAL COM	005H	Oil	Active	1120	S	207	W	M	22	24S	29E	8/6/2016	8819	13525	14.750	10.750	437	470	Surf	Circ	8939-13358	[96238] CORRAL DRAW; BONE SPRING
																		9.875	7.625	7650	3500	Surf	Circ		
																		6.750	5.500	8921	580	5329	Calc		
																		6.750	4.500	13514	580	5329	Calc		
40	30-015-43906	] OXY USA INC	CEDAR CANYON 22 FEDERAL COM	006Y	Oil	Active	1040	S	207	W	M	22	24S	29E	9/27/2016	8850	13405	14.750	10.750	435	740	Surf	Circ	8610-13196	[96238] CORRAL DRAW; BONE SPRING
																		9.875	7.625	8163	1300	Surf	Circ		
																		6.750	5.500	8957	540	7100	CBL		
																		6.750	4.500	13397	540	7100	CBL		
41	30-015-34817	] OXY USA INC	VORTEC 22	001	Oil	Active	330	S	330	E	P	22	24S	29E	4/28/2006	10852	10852	17.500	13.325	555	475	Surf	Circ	8121-10730	[50371] PIERCE CROSSING; BONE SPRING
																		12.250	9.625	2915	1075	Surf	Circ		
																		8.5 & 7.875	5.500	10852	2100	4190	CBL		
42	30-015-29318	] OXY USA INC	CANYON 23 FEDERAL	001	Oil	PA	1750	S	660	E	I	23	24S	29E	2/28/1997	13950	13950	26.000	20.000	40	grout	NA	NA	NA	NA
																		13.375	13.375	516	600	Surf	Circ		
																		9.625	9.625	3120	1200	Surf	Circ		
																		8.500	7.000	10500	1495	2300	Calc		
43	30-015-29616	] OXY USA INC	RIVERBEND 23 FEDERAL	014	Oil	PA	330	N	1910	W	C	23	24S	29E	5/31/1997	8200	8200	14.750	10.750	529	550	Surf	Circ	NA	NA
																		9.625	7.625	2976	800	Surf	Circ		
																		6.750	4.500	8200	1325	1497	TS		
44	30-015-33598	] OXY USA INC	RIVERBEND 23 FEDERAL	016Q	Oil	PA	1830	S	1980	E	J	23	24S	29E	8/31/2004	7850	8320	17.500	13.375	612	850	Surf	Circ	NA	NA
																		11.000	8.625	3060	1430	Surf	Circ		
																		7.875	5.500	8320	1690	1530	CBL		
45	30-015-29320	] OXY USA INC	RIVERBEND B FEDERAL	011	Oil	PA	330	N	2310	E	B	23	24S	29E	4/19/1997	8250	8250	17.500	13.375	535	950	Surf	Circ	NA	NA
																		11.000	8.625	2950	1107	Surf	Circ		

																		7.875	5.500	8250	1590	1160	Calc				
46	30-015-27994	] OXY USA INC	RIVERBEND FEDERAL	007		Oil	PA	2280	N	460	W	E	23	24S	29E	5/31/1994	9020	9020	17.500	13.375	465	640	Surf	Circ	NA		NA	
																			11.000	8.625	2934	1450	Surf	Circ				
																			7.875	5.500	9020	1800	1494	TS				
47	30-015-28390	] OXY USA INC	RIVERBEND FEDERAL	008		SWD	PA	460	N	330	W	D	23	24S	29E	11/17/1995	9000	9000	14.750	10.750	451	570	Surf	Circ	NA		NA	
																			9.975	7.625	2900	806	Surf	Circ				
																			6.750	4.500	9000	1220	1400	Calc				
48	30-015-44631	] OXY USA INC	CORRAL CANYON 36 25 FEDERAL COM	021H		Oil	Active	381	N	1493	W	C	1	25S	29E	2/20/2018	9101	20726	17.500	13.375	553	650	Surf	Circ	9361-20555		[96473] PIERCE CROSSING; BONE SPRING, EAST	
																			12.250	9.625	8621	3138	Surf	Circ				
																			8.500	5.500	20716	2474	8090	Calc				
49	30-015-44632	] OXY USA INC	CORRAL CANYON 36 25 FEDERAL COM	022H		Oil	Active	381	N	1528	W	C	1	25S	29E	2/20/2018	9117	20890	17.500	13.375	533	650	Surf	Circ	9546-20737		[96473] PIERCE CROSSING; BONE SPRING, EAST	
																			9.875	7.625	8588	2149	Surf	Circ				
																			6.750	5.500	20880	775	5940	CBL				
50	30-015-44633	] OXY USA INC	CORRAL CANYON 36 25 FEDERAL COM	023H		Oil	Active	381	N	1563	W	C	1	25S	29E	2/21/2018	9138	20675	17.500	13.375	554	685	Surf	Circ	9283-20476		[96473] PIERCE CROSSING; BONE SPRING, EAST	
																			9.875	7.625	8579	1986	255	TS				
																			6.750	5.500	20635	923	4900	CBL				
51	30-015-26152	Bass Enterprises Produciton Co.	Poker Lake Unit		73	Oil	PA	1060	S	1980	E	D	24	24S	29E	4/25/1991	11000	11000	17.500	13.375	820	1050	Surf	Circ	NA		NA	
																			12.250	9.625	3295	1600	Surf	Circ				
																			8.750	7.000	11000	800						
52	30-015-44634	] OXY USA INC	CORRAL CANYON 36 25 FEDERAL COM	024H		Oil	Active	940	N	1283	E	A	1	25S	29E	2/22/2018	9156	19803	14.750	10.750	658	762	Surf	Circ	9772-19624		[96473] PIERCE CROSSING; BONE SPRING, EAST	
																			9.875	7.625	8648	1904	Surf	Circ				
																			6.750	5.500	19788	867	5450	CBL				
53	30-015-44635	] OXY USA INC	CORRAL CANYON 36 25 FEDERAL COM	025H		Oil	Active	940	N	1248	E	A	1	25S	29E	2/24/2018	9197	19575	14.750	10.750	657	825	Surf	Circ	9570-19422		[96473] PIERCE CROSSING; BONE SPRING, EAST	
																			9.875	7.625	8648	1826	Surf	Circ				
																			6.750	5.500	19562	834	8130	CBL				
54	30-015-44636	] OXY USA INC	CORRAL CANYON 36 25 FEDERAL COM	026H		Oil	Active	940	N	1213	E	A	1	25S	29E	2/25/2018	9189	19660	14.750	10.750	657	825	Surf	Circ	9647-19499		[96473] PIERCE CROSSING; BONE SPRING, EAST	
																			9.875	7.625	8765	1908	Surf	Circ				
																			6.750	5.500	19646	831	5800	CBL				
55	30-015-44640	] OXY USA INC	CORRAL CANYON 36 25 FEDERAL COM	031H		Gas	Active	561	N	1493	W	C	1	25S	29E	6/29/2018	10444	20630	14.750	10.750	558	579	Surf	Circ	10556-20308		[98220] PURPLE SAGE; WOLFCAMP (GAS)	
																			9.875	7.625	9807	1285	Surf	Circ				
																			6.125	5.500	9698	934	5480	Calc				
																			6.125	4.500	20616	934	5480	Calc				
56	30-015-44642	] OXY USA INC	CORRAL CANYON 36 25 FEDERAL COM	032H		Gas	Active	561	N	1528	W	C	1	25S	29E	6/30/2018	10400	20718	14.750	10.750	558	680	Surf	Circ	10451-20500		[98220] PURPLE SAGE; WOLFCAMP (GAS)	
																			9.875	7.625	9849	1235	Surf	Circ				
																			6.750	5.500	20708	827	6500	Calc				
57	30-015-44643	] OXY USA INC	CORRAL CANYON 36 25 FEDERAL COM	033H		Gas	Active	561	N	1563	W	C	1	25S	29E	7/15/2018	10420	20861	14.750	10.750	580	700	Surf	Circ	10525-20625		[98220] PURPLE SAGE; WOLFCAMP (GAS)	
																			9.875	7.625	9906	1289	Surf	Circ				
																			6.750	5.500	20852	903	7550	Calc				
58	30-015-44644	] OXY USA INC	CORRAL CANYON 36 25 FEDERAL COM	034H		Gas	Active	1120	N	1284	E	A	1	25S	29E	7/14/2018	10418	21175	14.750	10.750	598	700	Surf	Circ	11168-20870		[98220] PURPLE SAGE; WOLFCAMP (GAS)	
																			9.875	7.625	9925	1513	Surf	Circ				
																			6.750	5.500	20980	903	9420	Calc				
59	30-015-44645	] OXY USA INC	CORRAL CANYON 36 25 FEDERAL COM	035H		Gas	Active	1120	N	1249	E	A	1	25S	29E	7/13/2018	10506	21108	14.750	10.750	598	660	Surf	Circ	11130-20981		[98220] PURPLE SAGE; WOLFCAMP (GAS)	
																			9.875	7.625	9968	1400	Surf	Circ				
																			6.750	5.500	21088	900	9454	Calc				
60	30-015-44646	] OXY USA INC	CORRAL CANYON 36 25 FEDERAL COM	036H		Gas	Active	1120	N	1214	E	A	1	25S	29E	7/12/2018	10533	21233	14.750	10.750	599	690	Surf	Circ	11260-21091		[98220] PURPLE SAGE; WOLFCAMP (GAS)	
																			9.875	7.625	10060	1317	Surf	Circ				
																			6.750	5.500	21223	853	8430	Calc				
61	30-015-44702	] OXY USA INC	CORRAL FLY 35 26 FEDERAL COM	021H		Oil	Active	694	N	1248	W	D	2	25S	29E	3/31/2018	8928	19584	14.750	10.750	412	418	Surf	Circ	9509-19389		[96473] PIERCE CROSSING; BONE SPRING, EAST	
																			9.875	7.625	8168	1885	Surf	Circ				
																			6.750	5.500	19519	846	7837	Calc				
62	30-015-44703	] OXY USA INC	CORRAL FLY 35 26 FEDERAL COM	022H		Oil	Active	694	N	1278	E	D	2	25S	29E	3/31/2018	8930	19410	14.750	10.750	382	836	Surf	Circ	9373-19248		[96473] PIERCE CROSSING; BONE SPRING, EAST	
																			9.875	7.625	8302	1869	Surf	Circ				
																			6.750	5.500	19394	882	7802	Calc				
63	30-015-44704	] OXY USA INC	CORRAL FLY 35 26 FEDERAL COM	023H		Oil	Active	694	N	1308	W	D	2	25S	29E	4/1/2018	8949	19480	14.750	10.750	400	418	Surf	Circ	9463-19338		[96473] PIERCE CROSSING; BONE SPRING, EAST	
																			9.875	7.625	8405	1737	Surf	Circ				
																			6.750	5.500	19470	850	7903	Calc				
64	30-015-44705	] OXY USA INC	CORRAL FLY 35 26 FEDERAL COM	024H		Oil	Active	314	N	1307	E	A	2	25S	29E	3/22/2018	9056	19671	14.750	10.750	442	490	Surf	Circ	9643-19519		[96473] PIERCE CROSSING; BONE SPRING, EAST	
																			9.875	7.625	8381	1841	Surf	Circ				
																			6.750	5.500	19651	821	7894	Calc				
65	30-015-44683	] OXY USA INC	CORRAL FLY 35 26 FEDERAL COM	025H		Oil	Active	314	N	1277	E	A	2	25S	29E	3/23/2018	9084	19378	14.750	10.750	436	490	Surf	Circ	9358-19234		[96473] PIERCE CROSSING; BONE SPRING, EAST	
																			9.875	7.625	8355	1611	Surf	Circ				
																			6.750	5.500	19363	807	6160	CBL				
66	30-015-44684	] OXY USA INC	CORRAL FLY 35 26 FEDERAL COM	026H		Oil	Active	314	N	1247	E	A	2	25S	29E	3/24/2018	9050	19313	14.750	10.750	444	490	Surf	Circ	9243-19169		[96473] PIERCE CROSSING; BONE SPRING, EAST	
																			9.875	7.625	8454	1846	Surf	Circ				
																			6.750	5.500	19303	821	6472	Calc				
67	30-015-44726	] OXY USA INC	CORRAL FLY 35 26 FEDERAL COM	031H		Gas	Active	694	N	1008	W	D	2	25S	29E	11/18/2018	10239	20840	14.750	10.750	722	1150	Surf	Circ	10851-20727		[98220] PURPLE SAGE; WOLFCAMP (GAS)	
																			9.875	7.625	9772	2094	Surf	Circ				
																			6.750	5.500	20827	880	9268	Calc				
68	30-015-44727	] OXY USA INC	CORRAL FLY 35 26 FEDERAL COM	032H		Gas	Active	694	N	1038	W	D	2	25S	29E	11/19/2018	10245	20568	14.750	10.750	723	1100	Surf	Circ	10617-20493		[98220] PURPLE SAGE; WOLFCAMP (GAS)	

																		9.875	7.625	9492	1271	Surf	Circ		
																		6.750	5.500	20609	849	9099	Calc		
69	30-015-44728	] OXY USA INC	CORRAL FLY 35 26 FEDERAL COM	033H	Gas	Active	694	N	1068	W	D	2	25S	29E	11/23/2018	10260	20990	14.750	10.750	721	1290	Surf	Circ	11013-20889	[98220] PURPLE SAGE; WOLFCAMP (GAS)
																		9.875	7.625	9849	1280	Surf	Circ		
																		6.750	5.500	20970	859	9348	Calc		
70	30-015-44729	] OXY USA INC	CORRAL FLY 35 26 FEDERAL COM	034H	Gas	Active	434	N	1308	E	A	2	25S	29E	10/2/2018	10366	20705	14.750	10.750	454	410	Surf	Circ	10687-20541	[98220] PURPLE SAGE; WOLFCAMP (GAS)
																		9.875	7.625	9715	1693	Surf	Circ		
																		6.750	5.500	20649	857	6200	Calc		
71	30-015-44730	] OXY USA INC	CORRAL FLY 35 26 FEDERAL COM	035H	Gas	Active	434	N	1278	E	A	2	25S	29E	10/2/2018	10358	20570	14.750	10.750	453	412	Surf	Circ	10571-20421	[98220] PURPLE SAGE; WOLFCAMP (GAS)
																		9.875	7.625	9759	1690	Surf	Circ		
																		6.750	5.500	20561	884	6200	Calc		
72	30-015-44731	] OXY USA INC	CORRAL FLY 35 26 FEDERAL COM	036H	Gas	Active	434	N	1248	E	A	2	25S	29E	10/3/2018	10364	20483	14.750	10.750	453	412	Surf	Circ	10537-20387	[98220] PURPLE SAGE; WOLFCAMP (GAS)
																		9.875	7.625	9530	1698	Surf	Circ		
																		6.750	5.500	20483	884	6200	Calc		
73	30-015-25706	] OXY USA INC	OWEN MESA 26 FEDERAL	001	Oil	PA	1350	N	1880	E	G	26	24S	29E	12/31/1986	12860	12860	17.500	13.375	680	500	Surf	Circ	NA	NA
																		12.250	9.625	3050	1955	Surf	Circ		
																		8.750	7.000	11050	1525	332	Calc		
																		6.125	4.500	12860	340	10696	Circ		
74	30-015-44435	] OXY USA INC	CEDAR CANYON 27 28 FEDERAL	042H	Oil	Active	956	N	325	W	D	28	24S	29E	8/5/2018	9982	20134	14.750	10.750	670	1000	Surf	Circ	9837-20031	[96473] PIERCE CROSSING; BONE SPRING, EAST
																		9.875	7.625	9382	817	Surf	Circ		
																		6.750	5.500	20122	864	8880	Calc		
75	30-015-43775	] OXY USA INC	CEDAR CANYON 27 FEDERAL COM	005H	Oil	Active	1154	N	151	W	D	27	24S	29E	5/28/2016	8819	13743	14.75	10.75	518	530	Surf	Circ	9079-13583	[96473] PIERCE CROSSING; BONE SPRING, EAST
																		9.875	7.625	8886	1500	Surf	Circ		
																		6.750	5.500	8886	600	6350	CBL		
																		6.750	4.500	13734	600	6350	CBL		
76	30-015-42063	] OXY USA INC	CEDAR CANYON 27 STATE COM	004H	Oil	Active	700	N	173	W	D	27	24S	29E	7/17/2014	8826	13589	14.750	11.750	464	910	Surf	Circ	9110-13340	[96473] PIERCE CROSSING; BONE SPRING, EAST
																		10.625	8.625	3115	880	Surf	Circ		
																		7.875	5.500	13585	1620	Surf	Circ		
77	30-015-43673	] OXY USA INC	CEDAR CANYON 27 STATE COM	010H	Gas	Active	1154	N	121	W	D	27	24S	29E	5/28/2016	10125	14880	14.750	10.750	500	530	Surf	Circ	10136-14712	[98220] PURPLE SAGE; WOLFCAMP (GAS)
																		9.875	7.625	9032	1640	Surf	Circ		
																		6.750	5.500	10189	590	6000	CBL		
																		6.750	4.500	14870	590	6000	CBL		
78	30-015-35041	] OXY USA INC	VORTEC 27	001	Oil	Active	660	N	330	E	A	27	24S	29E	10/1/2006	10848	10848	17.500	13.375	552	600	Surf	Circ	8102-10770	[96473] PIERCE CROSSING; BONE SPRING, EAST
																		12.250	9.625	2898	1030	Surf	Circ		
																		8.500	5.500	10848	2200	5900	CBL		
79	30-015-35492	] OXY USA INC	VORTEC 27	002	Oil	Active	2010	N	380	E	H	27	24S	29E	8/31/2007	11376	11376	17.500	13.375	550	500	surf	Circ	7981-11180	ACTIVE 1BS PROD. TOC 2400' MD, CBL [96473] PIERCE CROSSING; BONE SPRING, EAST
																		12.250	9.625	2920	950	surf	Circ		
																		8.5 & 7.875	5.500	11376	2250	2400	Calc		

WELL ID 16

Current Wellbore

10/5/2020

Ore Ida 14 Fed #7

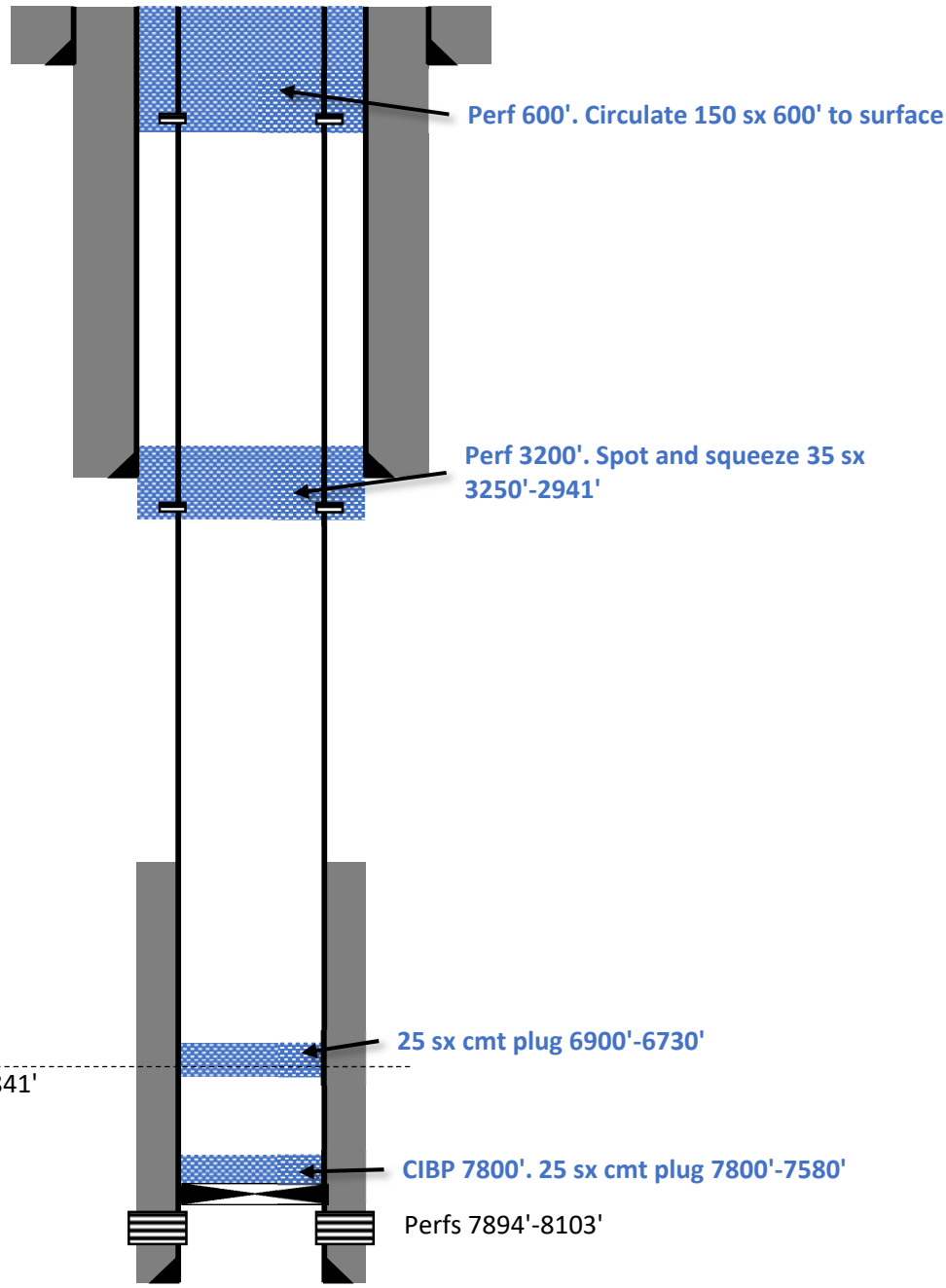
30-015-29306-0000

Eddy

String 1
OD 13.375 in
TD 376 ft
TOC 0 ft (Circulated)
525 sx

String 2
OD 8.625 in
TD 3081 ft
TOC 0 ft (Circulated)
1275 sx

String 3
OD 5.5 in
TD 8354 ft
TOC 5600 ft (Calculated)
PBTD 8354 ft
700 sx



WELL ID 20

OXY USA Inc. - Actual P&A
Harroun 15 # 013
API No. 30-015-31711

Perf'd @ 635'. 150sx Cl C to surface. Verified.

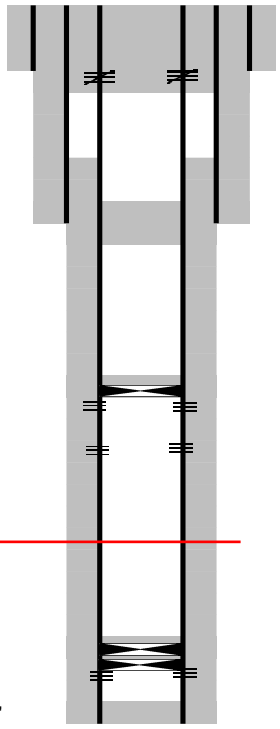
45sx Cl C f/ 3027' to 2532'.

Set CIBP @ 4840'. Tagged. Pumped 35sx Cl C. Tagged TOC @ 4490'.

Top of Proposed Injection Zone 6740'

Set CIBP @ 7730' - 35sx Cl H. Tagged TOC @ 7324'.
Pushed CIBP down to 7762'.

PBTD - 7973'



17-1/2" hole @ 580'
13-3/8" csg @ 580'
w/ 1070 sx-TOC-Surf-Circ.-1"

11" hole @ 2915'
8-5/8" csg @ 2915'
w/ 1050 sx-TOC-Surf- Circ.

Perfs 4890'-5151'

Perfs 5282'-5310'

7-7/8" hole @ 8020'
5-1/2" csg @ 8020'
w/ 1830sx-TOC-~1800'-CBL

Perfs 7780'-7802'

TD - 8020' TVD

WELL ID 23

Current Wellbore

10/6/2020

Harroun 15 #11

30-015-30951-0000

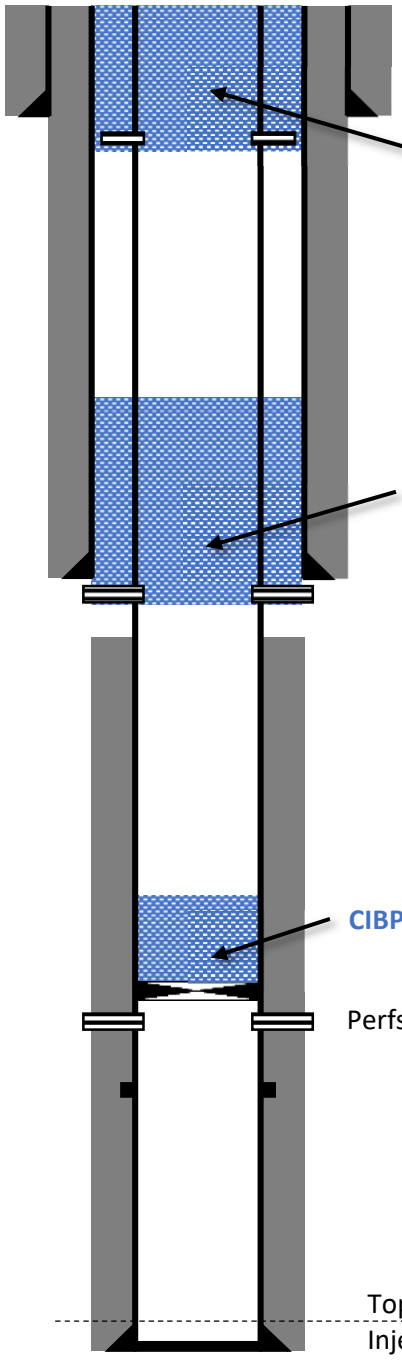
Eddy

String 1
OD 10.75 in
TD 563 ft
TOC 0 ft (circulated)
545 sx

String 2
OD 7.625 in
TD 2930 ft
TOC 0 ft (circulated)
800 sx

DV Tool
Top 5520 ft

String 3
OD 4.5 in
TD 6890 ft
TOC 3234 ft (CBL)
PBTD 6847 ft
1115 sx



Perforate 613'. 178 sx cmt plug 613' - surface.

Perforate 2980'. 65 sx cmt plug 2980'-2096'.

CIBP 5196'. 35 sx cmt plug 5196'-4800'.

Perfs 5246'-5264', Brushy Canyon

Top of Proposed Injection Zone 6710'

WELL ID 42

Current Wellbore

10/21/2020

Canyon 23 Federal #1

30-015-29318-0000

Eddy

String 1
OD 13.375 in
TD 516 ft
TOC 0 ft , Circulated
600 sx

String 2
OD 9.625 in
TD 3120 ft
TOC 0 ft , Circulated
1200 sx

DV Tool 4277 ft

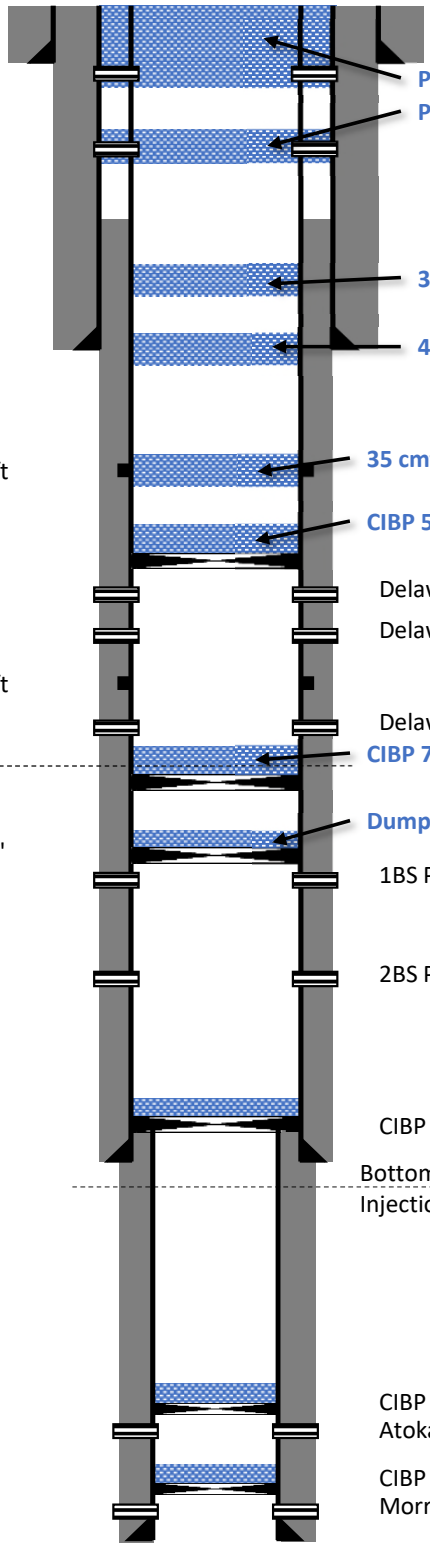
DV Tool 6103 ft

Top of Proposed
Injection Interval 6924'

CIBP 8000'

String 3
OD 7 in
TD 10500 ft
TOC 1936 ft , CBL
PBTD 13950 ft
1495 sx

Partial Liner
OD 5 in
10242 ft - 13930 ft
415 sx cmt
TOC 10242 ft



Perf 566'. 160 sx cmt plug 566' to surf

Perf 950'. 40 sx cmt plug 950'-849'

35 sx cmt plug 2769'-2557'

40 sx cmt plug 3267'-3017'

35 cmt plug 4355'-4157'

CIBP 5413'. 35 sx cmt plug 5413'-5183'.

Delaware Perfs 5464'-5478'

Delaware Perfs 5809'-5822'

Delaware Perfs 6530'-6772'

CIBP 7000'. 40 sx cmt plug 7000'-6818'.

Dump 5.5 sx cmt. Tag 7925'.

1BS Perfs 8064-8100'

2BS Perfs 8782'-9032'

CIBP 10240' w/ 50 sx cmt to 9957'

Bottom of Proposed
Injection Interval 10681'

CIBP 12712' with 35' cmt to 12677'
Atoka Perfs 12736'-12748'

CIBP 13600' with 36' cmt to 13564'
Morrow Perfs 13618'-13680'

WELL ID 43

Current Wellbore

10/21/2020

Riverbend 23 Federal #14

30-015-29616-0000

EDDY

String 1
OD 10.75 in
TD 529 ft
TOC 0 ft , Circulated
550 sx

String 2
OD 7.625 in
TD 2976 ft
TOC 0 ft , Circulated
800 sx

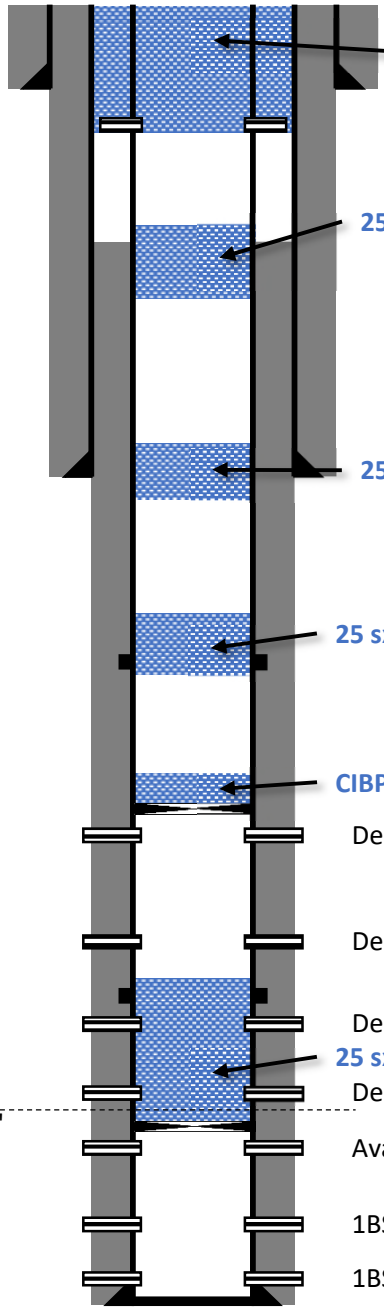
DV Tool 4409 ft

DV Tool 6211 ft

Top of Proposed Injection Interval 6788'

CIBP 6836'

String 3
OD 4.5 in
TD 8200 ft
TOC 1497 ft , Temp Survey
PBTD 8157 ft
1325 sx



Perf 579'. 140 sx cmt 579'-surface

25 sx cmt 1840'-1457'

25 sx cmt 3123'-2769'

25 sx cmt 4540'-4154'

CIBP 5135'. 25 sx cmt 5135'-4749'

Delaware Perfs 5184'-5370'

Delaware Perfs 5932'-5944'

Delaware Perfs 6348'-6399'

25 sx cmt plug 6836'-6018'

Delaware Perfs 6560'-6642'

Avalon Perfs 6886'-6900'

1BS Perfs 7856'-7864'

1BS Perfs 8053'-8078'

WELL ID 44

Current Wellbore

10/21/2020

Riverbend 23 Federal #16Q

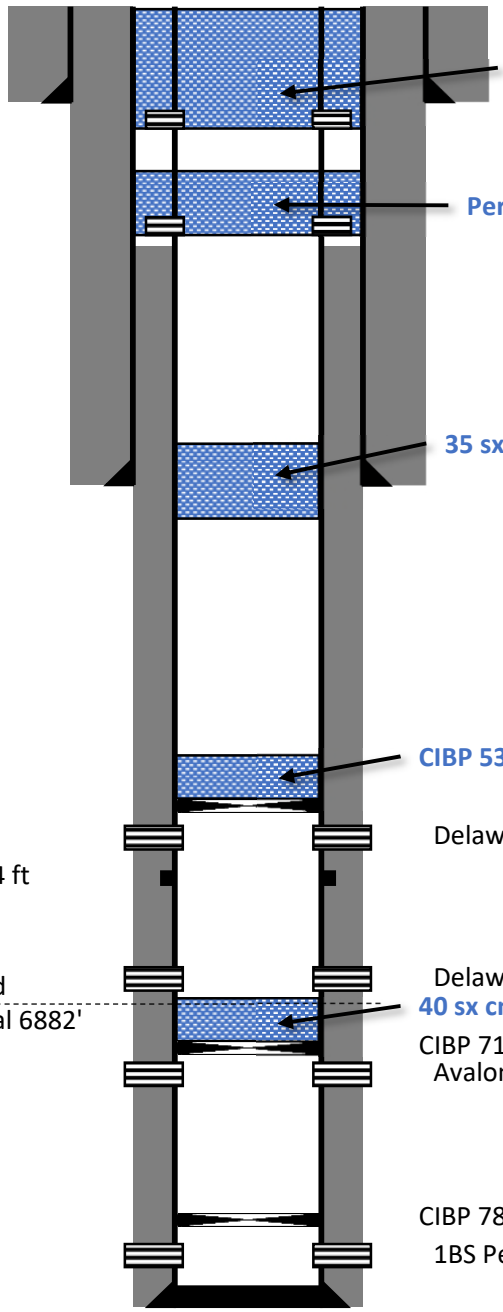
30-015-33598-0000

Eddy

String 1
OD 13.325 in
TD 612 ft
TOC 0 ft , Circulated
800 sx

String 2
OD 8.625 in
TD 3060 ft
TOC 0 ft , Circulated
1430 sx

String 3
OD 5.5 in
TD 8320 ft
TOC 1530 ft , CBL
PBTD 8192 ft
1690 sx



Perf 662'. 185 sx cmt 662'-surface

Perf 1410'. 85 sx cmt 1410-1071'

35 sx cmt 3205'-2930'

CIBP 5390'. 25 sx cmt 5390'-5166'

Delaware Perfs 5440'-5450'

DV Tool 5534 ft

Delaware Perfs 6707'-6735'

Top of Proposed
Injection Interval 6882'

40 sx cmt 7180'-6822'

CIBP 7180'

Avalon Perfs 7227'-7323'

CIBP 7850'

1BS Perfs 7918'-8066'

WELL ID 45

Current Wellbore

10/21/2020

Riverbend B Federal #11

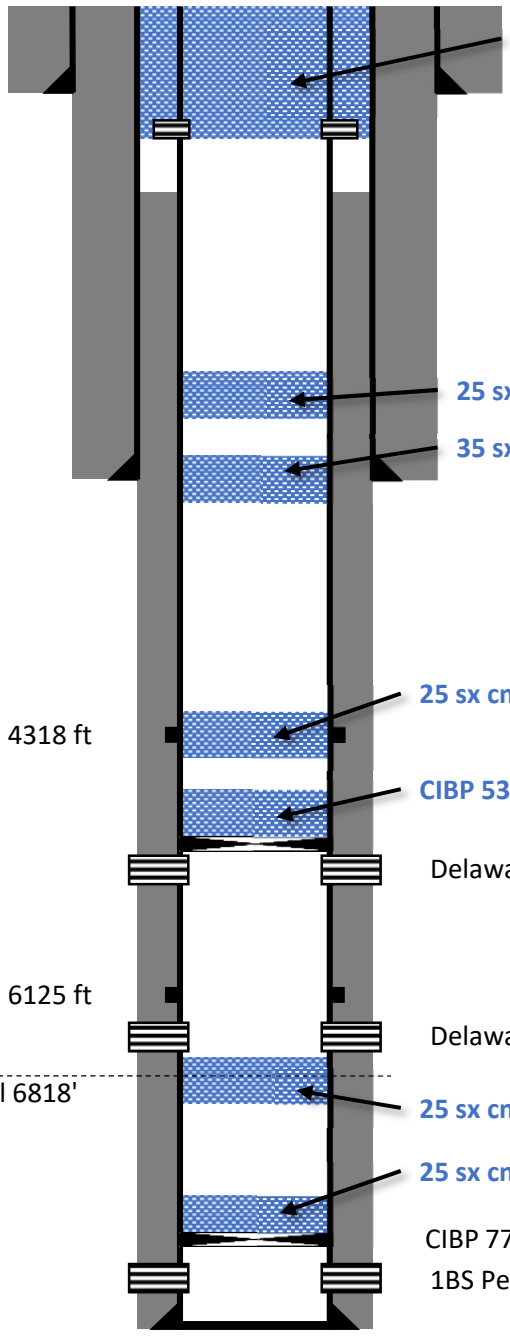
30-015-29320-0000

Eddy

String 1
OD 13.375 in
TD 535 ft
TOC 0 ft , Circulated
950 sx

String 2
OD 8.625 in
TD 2950 ft
TOC 0 ft , Circulated
1107 sx

String 3
OD 5.5 in
TD 8250 ft
TOC 1160 ft , Temp Survey
PBTD 8210 ft
1590 sx



Perf 730'. 185 sx cmt 730'-surface

25 sx cmt 2614'-2347'

35 sx cmt 3188'-2822'

DV Tool 4318 ft

25 sx cmt 4399'-4144'

CIBP 5322'. 25 sx cmt 5322'-5172'

Delaware Perfs 5372'-5670'

DV Tool 6125 ft

Delaware Perfs 6430'-6673'

Top of Proposed
Injection Interval 6818'

25 sx cmt 6921'-6678'

25 sx cmt 7793'-7555'

CIBP 7795'

1BS Perfs 7845'-8022'

WELL ID 46

Current Wellbore

10/21/2020

Riverbend Federal #7

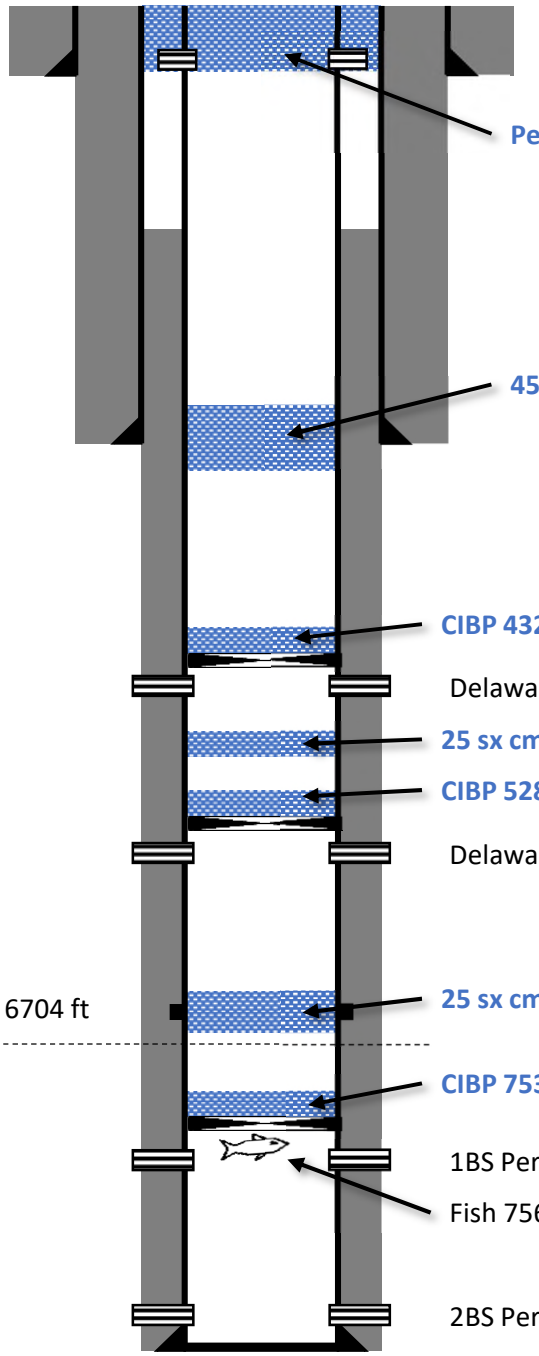
30-015-27994-0000

Eddy

String 1
OD 13.375 in
TD 465 ft
TOC 0 ft , Circulated
560 sx

String 2
OD 8.625 in
TD 2934 ft
TOC 0 ft , Circulated
1300 sx

String 3
OD 5.5 in
TD 9020 ft
TOC 1494 ft , CBL
PBTD 8975 ft
1300 sx



Perf 515'. 155 sx cmt 515'-surface

45 sx cmt 3115'-2650'

CIBP 4320'. 25 sx cmt 4320'-4067'

Delaware Perfs 4370'-4376'

25 sx cmt 4672'-4413'

CIBP 5280'. 25 sx cmt plug 5280'-5027'

Delaware Perfs 5330'-5354'

DV Tool 6704 ft

Top of Proposed Injection Interval 6784'

25 sx cmt 6847'-6565'

CIBP 7530'. 25 sx cmt 7530'-7204'

1BS Perfs 7814'-7922'

Fish 7561'-7752' (Tbg, TAC, pump)

Prod Zone
8780 ft
8848 ft

2BS Perfs 8780'-8848'

WELL ID 47

Current Wellbore

10/26/2020

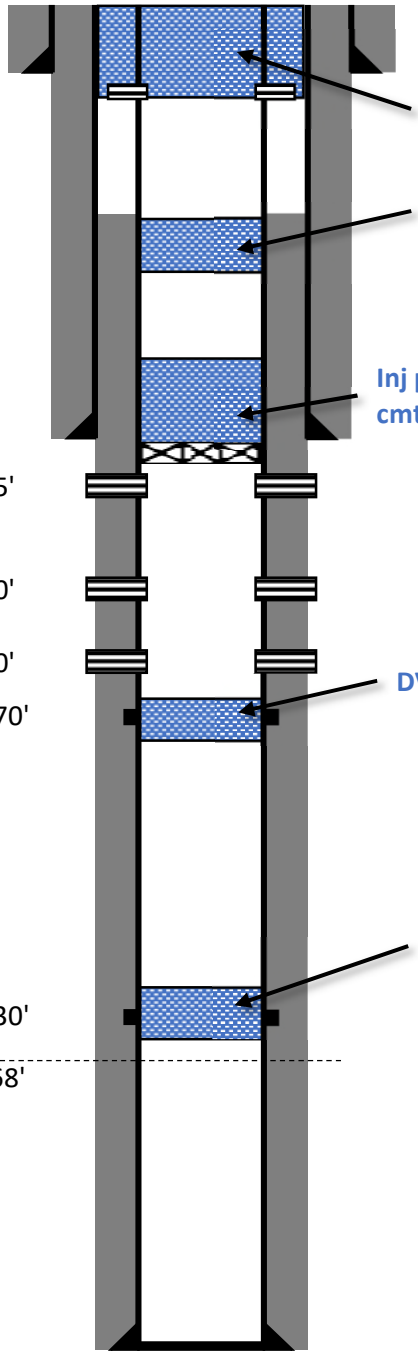
Riverbend Federal #8

30-015-28390-0000

Eddy

String 1
OD 10.75 in
TD 451 ft
TOC 0 ft , Circulated
470 sx

String 2
OD 7.625 in
TD 2900 ft
TOC 0 ft , Circulated
700 sx



Perf 501'. 100 sx cmt 501' - surface

25 sx cmt 1768'-1401'

Inj packer w/ blk plug 3012'. 25 sx cmt 3012'-2604'

Perfs 3070'-3165'

Perfs 3946'-4000'

Perfs 4320'-4470'

DV Tool 4570'

DVT not drilled out 4570'

DVT not drilled out 6728'

DV Tool 6730'

Top of Proposed Injection Interval 6768'

String 3
OD 4.5 in
TD 9000 ft
TOC 1400 ft , CBL
PBTD 8953 ft
1220 sx

WELL ID 51

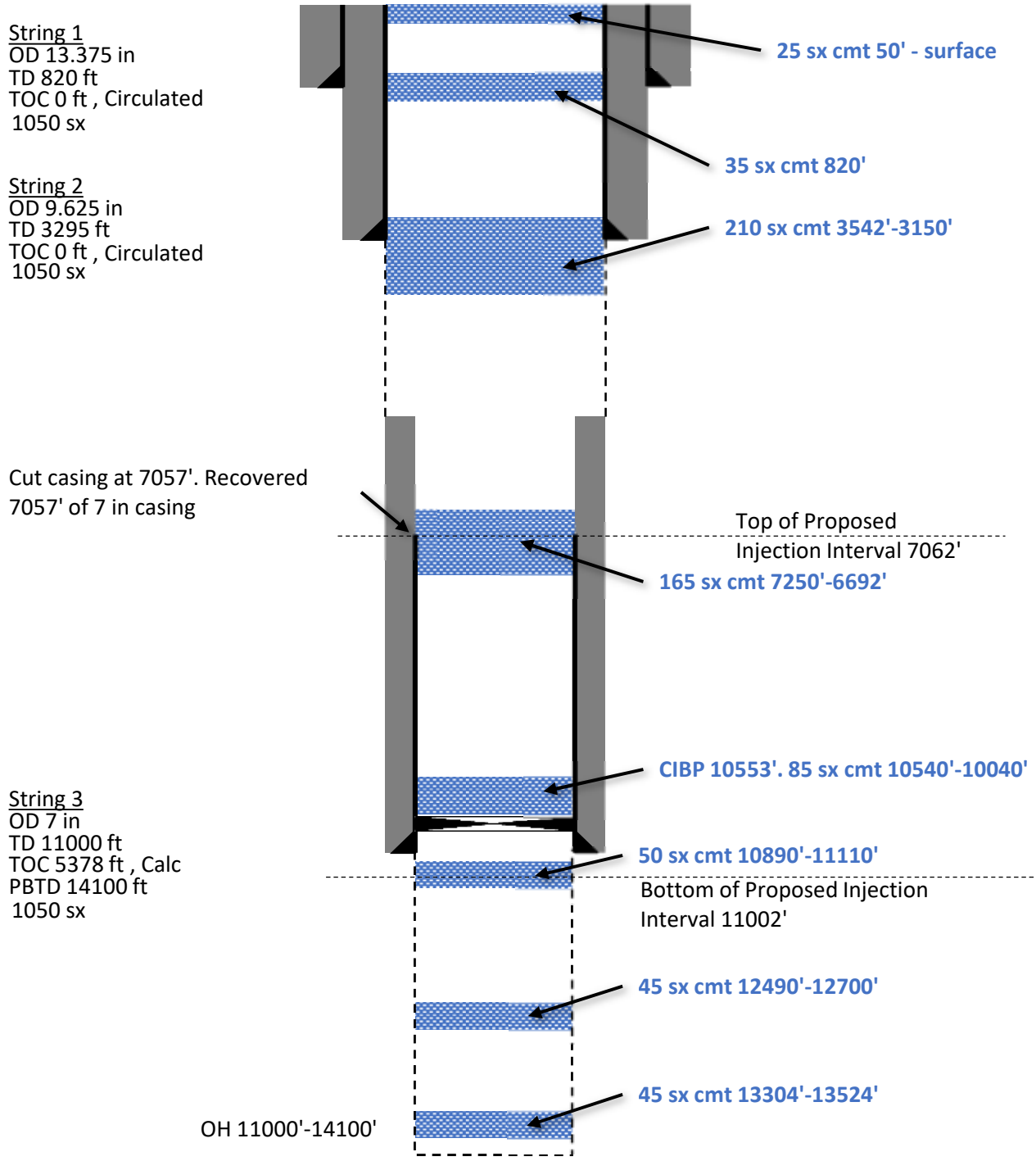
Current Wellbore

10/28/2020

Poker Lake Unit 73

30-015-26152-0000

Eddy



WELL ID 73

ACTUAL P&A SUBSEQUENT WBD

6/7/2021

Owen Mesa 26 Federal Com #001

30-015-25706-0000

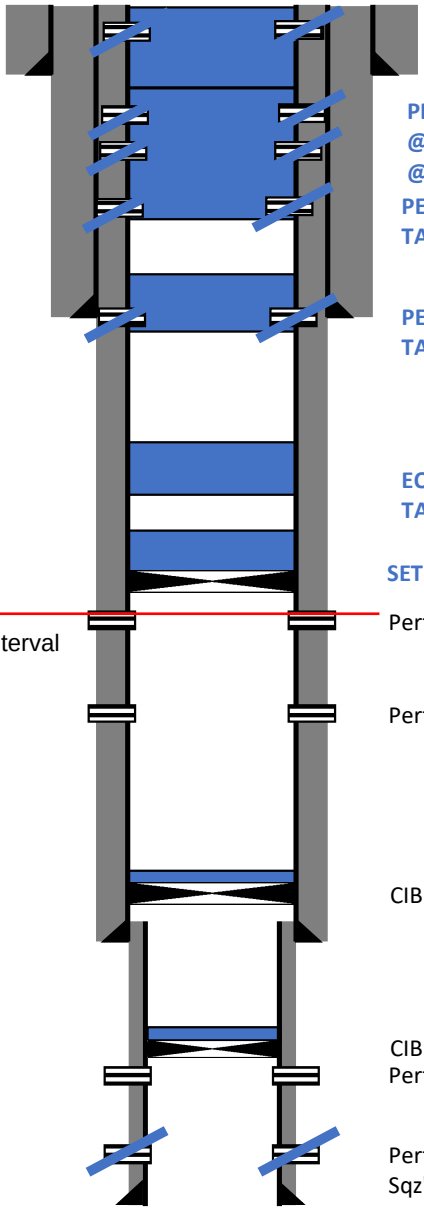
Eddy

String 1
OD 13.375 in
TD 680 ft
TOC 0 ft

String 2
OD 9.625 in
TD 3050 ft
TOC 11 ft

String 3
OD 7 in
TD 11050 ft
TOC 0 ft
PBTD ft

Liner
4.5 in
10696-12860 ft



PERF'D 60'. EOT @ 589'. 100SX CLASS C CMT. VERIFIED CMT TO SURF.

PERF'D @ 730'. PERF'D @ 680'. EOT @ 848'. 40SXCLASS C CMT. TAGGED @ 589'

PERF'D @ 950'. 30SXCLASS C CMT. TAGGED @ 848'

PERF'D 3150'. 85SX CLASS C CMT. TAGGED @ 2646'.

EOT @ 4955'. 45 SX CLASS C CMT. TAGGED @ 4633'.

SET CIBP AT 6782'. 45sx CL C CMT. TAGGED @ 6484'

Top of Proposed Injection Interval
6842'

Perfs 6832-6962

Perfs 7952-7962

CIBP @ 10000 with 35' cmt

CIBP @ 11400 with 35' cmt
Perfs 11487-11731, Wolfcamp

Perfs 12576-12697, Atoka
Sqz'd with 100 sx cmt.

Oxy USA Inc.
Cedar Canyon Section 23-24
Eddy County, NM
Item VII- Proposed Operations

Proposed Operations

Water Injection

1. Water Rate Table

Well Name	Zone	Average Daily Injection Rate [BWIPD]	Max Daily Injection Rate [BWIPD]
GUACAMOLE CC 24-23 FED #12H	AVL	5,000	10,000
GUACAMOLE CC 24-23 FED #11H	1BS	5,000	10,000
CEDAR CANYON 23 #1H	1BS	5,000	10,000
CEDAR CANYON 23 #2H	2BS	5,000	10,000
CEDAR CANYON 23 FEDERAL #3H	2BS	5,000	10,000
CEDAR CANYON 23 FEDERAL #4H	2BS	5,000	10,000
CEDAR CANYON 23 Fed #5H	2BS	5,000	10,000
CEDAR CANYON 23 FEDERAL COM #6H	2BS	5,000	10,000
CEDAR CANYON 23 24 FEDERAL #31H	3BS	5,000	10,000
CEDAR CANYON 23 24 FEDERAL #32H	3BS	5,000	10,000
CEDAR CANYON 23 24 FEDERAL COM #34H	3BS	5,000	10,000
CEDAR CANYON 23 FEDERAL COM #33H	WCXY	5,000	10,000

2. This will be a closed system.

3. Water Pressure Table (see Calculations below for Max Injection Pressure)

Well Name	Zone	Average Injection Pressure [psi]	Max Injection Pressure [psi]
GUACAMOLE CC 24-23 FED #12H	AVL	1,500	1,500
GUACAMOLE CC 24-23 FED #11H	1BS	1,500	1,500
CEDAR CANYON 23 #1H	1BS	1,500	1,500
CEDAR CANYON 23 #2H	2BS	1,700	1,700
CEDAR CANYON 23 FEDERAL #3H	2BS	1,700	1,700
CEDAR CANYON 23 FEDERAL #4H	2BS	1,770	1,770
CEDAR CANYON 23 Fed #5H	2BS	1,700	1,700
CEDAR CANYON 23 FEDERAL COM #6H	2BS	1,700	1,700
CEDAR CANYON 23 24 FEDERAL #31H	3BS	1,950	1,950
CEDAR CANYON 23 24 FEDERAL #32H	3BS	1,950	1,950
CEDAR CANYON 23 24 FEDERAL COM #34H	3BS	1,950	1,950
CEDAR CANYON 23 FEDERAL COM #33H	WCXY	2,000	2,000

4. The source of the injected water will be produced water, which is comprised of nearby Delaware, Bone Spring, and Wolfcamp wells. Please see the attached water analysis.

5. N/A

Gas Injection

1. Gas Rate Table

Well Name	Zone	Average Daily Injection Rate [MMSCFD]	Max Daily Injection Rate [MMSCFD]
GUACAMOLE CC 24-23 FED #12H	AVL	15	40
GUACAMOLE CC 24-23 FED #11H	1BS	15	40
CEDAR CANYON 23 #1H	1BS	15	40
CEDAR CANYON 23 #2H	2BS	15	40
CEDAR CANYON 23 FEDERAL #3H	2BS	15	40
CEDAR CANYON 23 FEDERAL #4H	2BS	15	40
CEDAR CANYON 23 Fed #5H	2BS	15	40
CEDAR CANYON 23 FEDERAL COM #6H	2BS	15	40
CEDAR CANYON 23 24 FEDERAL #31H	3BS	15	40
CEDAR CANYON 23 24 FEDERAL #32H	3BS	15	40
CEDAR CANYON 23 24 FEDERAL COM #34H	3BS	15	40
CEDAR CANYON 23 FEDERAL COM #33H	WCXY	15	40

2. This will be a closed system.

3. Gas Pressure Table (see Calculations below for Max Injection Pressure)

Well Name	Zone	Average Injection Pressure [psi]	Max Injection Pressure [psi]
GUACAMOLE CC 24-23 FED #12H	AVL	3,900	3,900
GUACAMOLE CC 24-23 FED #11H	1BS	4,000	4,000
CEDAR CANYON 23 #1H	1BS	4,000	4,000
CEDAR CANYON 23 #2H	2BS	4,350	4,350
CEDAR CANYON 23 FEDERAL #3H	2BS	4,350	4,350
CEDAR CANYON 23 FEDERAL #4H	2BS	4,350	4,350
CEDAR CANYON 23 Fed #5H	2BS	4,350	4,350
CEDAR CANYON 23 FEDERAL COM #6H	2BS	4,350	4,350
CEDAR CANYON 23 24 FEDERAL #31H	3BS	4,850	4,850
CEDAR CANYON 23 24 FEDERAL #32H	3BS	4,850	4,850
CEDAR CANYON 23 24 FEDERAL COM #34H	3BS	4,850	4,850
CEDAR CANYON 23 FEDERAL COM #33H	WCXY	4,950	4,950

4. The source of the injected gas will be produced gas from the Cedar Canyon Gathering Network, which is comprised of nearby Delaware, Bone Spring, and Wolfcamp wells. Please see the attached gas analysis.

5. N/A

CO2 Injection

1. CO2 Rate Table

Well Name	Zone	Average Daily Injection Rate [MMSCFD]	Max Daily Injection Rate [MMSCFD]
GUACAMOLE CC 24-23 FED #12H	AVL	30	40
GUACAMOLE CC 24-23 FED #11H	1BS	30	40
CEDAR CANYON 23 #1H	1BS	30	40
CEDAR CANYON 23 #2H	2BS	30	40
CEDAR CANYON 23 FEDERAL #3H	2BS	30	40
CEDAR CANYON 23 FEDERAL #4H	2BS	30	40
CEDAR CANYON 23 Fed #5H	2BS	30	40
CEDAR CANYON 23 FEDERAL COM #6H	2BS	30	40
CEDAR CANYON 23 24 FEDERAL #31H	3BS	30	40
CEDAR CANYON 23 24 FEDERAL #32H	3BS	30	40
CEDAR CANYON 23 24 FEDERAL COM #34H	3BS	30	40
CEDAR CANYON 23 FEDERAL COM #33H	WCXY	30	40

2. This will be a closed system.

3. CO2 Pressure Table (see Calculations section below for Max Injection Pressure)

Well Name	Zone	Average Injection Pressure [psi]	Max Injection Pressure [psi]
GUACAMOLE CC 24-23 FED #12H	AVL	2,000	2,000
GUACAMOLE CC 24-23 FED #11H	1BS	2,050	2,050
CEDAR CANYON 23 #1H	1BS	2,050	2,050
CEDAR CANYON 23 #2H	2BS	2,200	2,200
CEDAR CANYON 23 FEDERAL #3H	2BS	2,200	2,200
CEDAR CANYON 23 FEDERAL #4H	2BS	2,300	2,300
CEDAR CANYON 23 Fed #5H	2BS	2,200	2,200
CEDAR CANYON 23 FEDERAL COM #6H	2BS	2,200	2,200
CEDAR CANYON 23 24 FEDERAL #31H	3BS	2,450	2,450
CEDAR CANYON 23 24 FEDERAL #32H	3BS	2,450	2,450
CEDAR CANYON 23 24 FEDERAL COM #34H	3BS	2,450	2,450
CEDAR CANYON 23 FEDERAL COM #33H	WCXY	2,500	2,500

4. Oxy does not currently have a source for CO2 for this project area. However, Oxy would like to have the ability to inject CO2 when a source becomes available.

5. N/A

Maximum Injection Pressure Calculations

Water

Maximum Water Injection Pressures were calculated for each well. The First Perf TVD (Column C) was multiplied by 0.2 psi/ft (per OCD guidelines). The result is the Calculated Max Water Surface Pressure (Column D). Next, the minimum value of each zone was identified. This was rounded down and used for all wells in the same zone (Column E). The requested Max Water Injection Pressure for each well is in Column E.

A	B	C	D	E
Well Name	**Zone**	**First perf TVD [ft]**	**Calculated Max Water Surface Pressure [psi]**	**Max Water Injection Pressure [psi]**
GUACAMOLE CC 24-23 FED #12H	AVL	7,862	1,572	1,500
GUACAMOLE CC 24-23 FED #11H	1BSS	8,219	1,644	1,500
CEDAR CANYON 23 #1H	1BSS	7,854	1,571	1,500
CEDAR CANYON 23 #2H	2BSS	8,570	1,714	1,700
CEDAR CANYON 23 FEDERAL #3H	2BSS	8,829	1,766	1,700
CEDAR CANYON 23 FEDERAL #4H	2BSS	8,850	1,770	1,770
CEDAR CANYON 23 Fed #5H	2BSS	8,844	1,769	1,700
CEDAR CANYON 23 FEDERAL COM #6H	2BSS	8,854	1,771	1,700
CEDAR CANYON 23 24 FEDERAL #31H	3BSS	9,972	1,994	1,950
CEDAR CANYON 23 24 FEDERAL #32H	3BSS	9,917	1,983	1,950
CEDAR CANYON 23 24 FEDERAL COM #34H	3BSS	9,925	1,985	1,950
CEDAR CANYON 23 FEDERAL COM #33H	WCXY	10,131	2,026	2,000

Gas

Maximum Gas Injection Pressures were calculated for each well. The first Perf TVD (Column C) was multiplied by 0.2 psi/ft and 0.433 psi/ft (freshwater pressure gradient). The result is Calculated Max Bottomhole Pressure (Column D). Next, a Petroleum Expert Prosper Model was used to calculate the Max Surface Pressure (Column E). Various inputs were made for each well, including: Fluid Composition, Downhole Equipment Configuration, Bottomhole Temperature, and Injection Rate. Finally, the average value was calculated for each zone. This value was rounded and used for all wells in the same zone (Column F). The requested Max Gas Injection Pressure for each well is in Column F.

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

A	B	C	D	E	F
Well Name	**Zone**	**First perf TVD [ft]**	**Calculated Max Bottomhole Pressure [psi]**	**Calculated Max Surface Pressure [psi]**	**Max Gas Injection Pressure [psi]**
GUACAMOLE CC 24-23 FED #12H	AVL	7,862	4,977	3920	3,900
GUACAMOLE CC 24-23 FED #11H	1BSS	8,219	5,203	4080	4,000
CEDAR CANYON 23 #1H	1BSS	7,854	4,972	3920	4,000
CEDAR CANYON 23 #2H	2BSS	8,570	5,425	4250	4,350
CEDAR CANYON 23 FEDERAL #3H	2BSS	8,829	5,589	4360	4,350
CEDAR CANYON 23 FEDERAL #4H	2BSS	8,850	5,602	4370	4,350
CEDAR CANYON 23 Fed #5H	2BSS	8,844	5,598	4360	4,350
CEDAR CANYON 23 FEDERAL COM #6H	2BSS	8,854	5,605	4380	4,350
CEDAR CANYON 23 24 FEDERAL #31H	3BSS	9,972	6,312	4860	4,850
CEDAR CANYON 23 24 FEDERAL #32H	3BSS	9,917	6,277	4840	4,850
CEDAR CANYON 23 24 FEDERAL COM #34H	3BSS	9,925	6,283	4840	4,850
CEDAR CANYON 23 FEDERAL COM #33H	WCXY	10,131	6,413	4930	4,950

CO2

Maximum CO2 Injection Pressures were calculated for each well. The process is very similar to the calculations for gas. The first Perf TVD (Column C) was multiplied by 0.2 psi/ft and 0.433 psi/ft (freshwater pressure gradient). The result is Calculated Max Bottomhole Pressure (Column D). Next, a Petroleum Expert Prosper Model was used to calculate the Max Surface Pressure (Column E). Various inputs were made for each well, including: Fluid Composition, Downhole Equipment Configuration, Bottomhole Temperature, and Injection Rate. For CO2, the Prosper Model inputs were the same as gas, except for Fluid Composition, Tubing ID, and Tubing Roughness. Finally, the average value was calculated for each zone. This value was rounded and used for all wells in the same zone (Column F). The requested Max CO2 Injection Pressure for each well is in Column F.

A	B	C	D	E	F
Well Name	**Zone**	**First perf TVD [ft]**	**Calculated Max Bottomhole Pressure [psi]**	**Calculated Max Surface Pressure [psi]**	**Max CO2 Injection Pressure [psi]**
GUACAMOLE CC 24-23 FED #12H	AVL	7,862	4,977	2,000	2,000
GUACAMOLE CC 24-23 FED #11H	1BSS	8,219	5,203	2,070	2,050
CEDAR CANYON 23 #1H	1BSS	7,854	4,972	2,000	2,050
CEDAR CANYON 23 #2H	2BSS	8,570	5,425	2,180	2,200
CEDAR CANYON 23 FEDERAL #3H	2BSS	8,829	5,589	2,230	2,200
CEDAR CANYON 23 FEDERAL #4H	2BSS	8,850	5,602	2,230	2,300
CEDAR CANYON 23 Fed #5H	2BSS	8,844	5,598	2,230	2,200
CEDAR CANYON 23 FEDERAL COM #6H	2BSS	8,854	5,605	2,240	2,200
CEDAR CANYON 23 24 FEDERAL #31H	3BSS	9,972	6,312	2,460	2,450
CEDAR CANYON 23 24 FEDERAL #32H	3BSS	9,917	6,277	2,450	2,450
CEDAR CANYON 23 24 FEDERAL COM #34H	3BSS	9,925	6,283	2,450	2,450
CEDAR CANYON 23 FEDERAL COM #33H	WCXY	10,131	6,413	2,490	2,500

Water Compatibility Analysis

Scale precipitation due to incompatibility of mixing different waters is simulated using ScaleSoftPitzer™ (SSP) developed by Rice University's Brine Chemistry Consortium. Compatibility simulations were performed between (a) Avalon (Av) formation water and produced water (PW) from Cedar Canyon Water Treatment Facility (CC15 WTF); (b) 1st Bone Spring (1BS) formation water and PW, and (c) 2nd BS (2BS) formation water and PW, (d) 3rd BS (3BS) formation water and PW, and (e) Wolfcamp XY (WCXY) formation water and PW. Table 1 shows the water analysis for the 6 waters.

Table 1. Water analysis of the various formation waters and produced water.

	Avalon	1BS	2BS	3BS	WCXY	PW (CC15 SWD / WTF)
Na+	61,300	62,900	49,968	41,800	40,800	47,391
K+	1,150	1,010	919	725	754	789
Mg2+	417	458	1,321	835	734	1,313
Ca2+	2,000	2,420	8,657	5,500	4,760	8,793
Sr2+	337	526	525	946	922	799
Ba2+	0.8	1.6	0.8	3.0	2.9	2.4
Fe2+	21	31	49	21	10	20
Cl-	93,748	89,722	80,324	67,188	61,658	89,632
SO42-	847	347	501	306	240	386
Total Alkalinity	3,080	403	101	134	98	169
TDS (Measured)	163,975	158,834	142,809	118,138	110,649	148,507
Calc. Density (STP)	1.122	1.121	1.117	1.088		1.109
pH, measured	6.48	6.30	6.55	7.13	6.30	6.29

The various waters are input into SSP at different ratios to calculate scaling index (SI) and potential precipitation (ppt) in pound per thousand barrels (ptb). Bottomhole temperature of 150 F and bottomhole pressures of 5,000 psia were used in the modeling. Results are summarized in Table 2 to Table 5.

Three common types of oilfield scales are examined; they are calcite, barite and celestite. Amongst the various ratios of the different formation waters, there are minute amount of scaling potential for barite and celestite, i.e. small or negative SI, therefore the focus of discussion with be surrounding calcium carbonate (calcite) scale.

(a) Avalon + Produced Water:

In general, there is a significant, inherent calcite scaling tendency in Avalon formation water itself. The predicted SI downhole is of 1.52 with a potential precipitation of 549 lb of scale per thousand bbl of water as shown in Table 2. Any scaling index above zero indicates a supersaturation condition of the scale. By mixing PW with the Avalon formation water it is observed that the scaling index of calcite become slightly higher first and then become smaller as the ratio of PW increases. The potential amount of precipitation is found to decrease as the ratio of PW to Avalon water increases. Therefore we expect little to no additional precipitation is induced due to addition of produced water into the Avalon reservoir.

Table 2: Prediction of SI and potential PPT of 3 common oilfield scales by mixing Avalon formation water and PW at different ratios.

PW from CC15 SWD / WTF	avg. Avalon	Calcite		Barite		Celestite	
% PW	% Avalon	SI	ppt (ptb)	SI	ppt (ptb)	SI	ppt (ptb)
100	0	0.54	15	-0.10	0.0	0.08	33
75	25	1.39	164	-0.04	0.0	0.16	66
50	50	1.59	323	-0.03	0.0	0.20	84
25	75	1.63	467	-0.05	0.0	0.20	82
0	100	1.52	549	-0.14	0.0	0.17	60

(b) 1st Bone Spring + Produced Water

In general there is a slight, inherent calcite scaling tendency in 1BS formation water itself as shown in Table 3. By introducing PW, the scaling index is first observed to increase slightly and then decrease. The potential amount of precipitation is found to decrease by diluting the 1BS water with PW at all ratios. Therefore we expect little to no additional precipitation is induced due to addition of produced water into the 1BS reservoir.

Table 3: Prediction of SI and potential PPT of 3 common oilfield scales by mixing 1st BS water and PW at different ratios.

PW from CC15 SWD / WTF	avg. 1st BS	Calcite		Barite		Celestite	
% PW	% 1st BS	SI	ppt (ptb)	SI	ppt (ptb)	SI	ppt (ptb)
100	0	0.54	15	-0.10	0.0	0.08	33
75	25	0.62	23	-0.14	0.0	0.05	18
50	50	0.65	29	-0.18	0.0	0.01	3
25	75	0.62	33	-0.23	0.0	-0.04	0
0	100	0.49	30	-0.29	0.0	-0.09	0

(c) 2nd Bone Spring + Produced Water

One can observe that the water quality of 2BS formation water is very similar to that of PW. This is because the majority of our wells in Cedar Canyon are of 2BS. By introducing PW into the 2BS reservoir, it is observed that there is a slight increase in scaling index and a slight increase in precipitation as shown in Table 4. The increase of such is probably within the natural variation of the water quality itself. Therefore we expect little to no additional precipitation is induced due to addition of produced water into the 2BS reservoir.

Table 4: Prediction of SI and potential PPT of 3 common oilfield scales by mixing 2nd BS water and PW at different ratios.

PW from CC15 SWD / WTF	avg. 2nd BS	Calcite		Barite		Celestite	
% PW	% 2nd BS	SI	ppt (ptb)	SI	ppt (ptb)	SI	ppt (ptb)
100	0	0.54	15	-0.10	0	0.08	33
75	25	0.50	12	-0.16	0	0.06	24
50	50	0.48	10	-0.25	0	0.03	13
25	75	0.47	8	-0.37	0	0.00	0
0	100	0.49	7	-0.55	0	-0.05	0

(d) 3rd Bone Spring + Produced Water

3BS formation water is found to have a moderate, inherent calcite scaling tendency by itself. By mixing PW with 3BS water, the scaling index is found to decrease as shown in Table 5. The potential amount of precipitation is found to decrease as well. Therefore we expect little to no additional precipitation is induced due to addition of produced water into the 3BS reservoir.

Table 5: Prediction of SI and potential PPT of 3 common oilfield scales by mixing 3rd BS water and PW at different ratios.

PW from CC15 SWD / WTF	avg. 3rd BS	Calcite		Barite		Celestite	
% PW	% 3rd BS	SI	ppt (ptb)	SI	ppt (ptb)	SI	ppt (ptb)
100	0	0.54	15	-0.10	0	0.08	33
75	25	0.61	15	-0.09	0	0.08	29
50	50	0.73	15	-0.09	0	0.07	25
25	75	0.88	16	-0.08	0	0.06	21
0	100	0.99	17	-0.08	0	0.05	18

(e) Wolfcamp XY + Produced Water

WCXY formation water has essentially no calcite scaling tendency. By mixing PW with WCXY water, simulation suggests that both scaling index and potential precipitation increase. However even at 100% of WP, the potential amount of precipitation is only of 15 PTB, an amount that is so small that it is within natural variation of the water quality itself. Therefore we expect little to no additional precipitation is induced due to addition of produced water into the WCXY reservoir. In reality, the high ratio of WP to WCXY only happens at the front of the flood. As soon as the two waters start mixing, the scaling index and the amount of potential precipitation will begin to reduce.

Table 6: Prediction of SI and potential PPT of 3 common oilfield scales by mixing WCXY water and PW at different ratios.

PW from CC15 SWD / WTF	avg. WCXY	Calcite		Barite		Celestite	
% PW	% WCXY	SI	ppt (ptb)	SI	ppt (ptb)	SI	ppt (ptb)
100	0	0.54	15	-0.10	0	0.08	33
75	25	0.42	11	-0.11	0	0.06	21
50	50	0.29	7	-0.12	0	0.02	9
25	75	0.15	3	-0.14	0	-0.01	0
0	100	-0.03	0	-0.16	0	-0.05	0

Injection Gas Sample

Volumetrics US Inc.
3001 N Cameron St, Victoria, TX-77901
Phone: 361-827-4024

Company:	OXY USA INC	**Work Order**	4000319007
Field/Location :	NMSW	**Sampled by:**	VOLUMETRICS/JA
Station Name :	CEDAR CANYON SAN MATEO CHECK A	**Sample Type :**	SPOT-CYLINDER
Station Number :	14898C	**Sample Temperature (F):**	90
Sample Date:	6/15/21 8:00 AM	**Sample Pressure (PSIG):**	737
Analysis Date:	6/28/21 3:27 PM	**Flow rate (MCF/Day):**	28931.7
Instrument:	VARIAN- 490 GC	**Ambient Temperature (F):**	77
Calibration/Verification Date:	6/28/2021	**Sampling method:**	FILL & EMPTY
Heat Trace used:	YES	**Cylinder Number:**	1434

NATURAL GAS ANALYSIS: GPA 2261

Components	**Un-Normalized Mol%**	**Normalized Mol%**	**GPM 14.650**	**GPM 14.730**	**GPM 15.025**
Hydrogen Sulfide	0.0000	0.0000			
Nitrogen	1.4612	1.4735			
Methane	75.8013	76.4367			
Carbon Dioxide	0.8630	0.8702			
Ethane	11.5892	11.6864	3.119	3.136	3.199
Propane	5.6599	5.7074	1.569	1.578	1.609
Isobutane	0.7204	0.7264	0.237	0.239	0.243
N-butane	1.7860	1.8010	0.567	0.570	0.581
Isopentane	0.3998	0.4032	0.147	0.148	0.151
N-Pentane	0.4470	0.4507	0.163	0.164	0.167
Hexanes Plus	0.4408	0.4445	0.194	0.195	0.199
Total	**99.1686**	**100.0000**			

Hexanes plus split (60%-30%-10%)

Physical Properties (Calculated)	**14.650 psia**	**14.730 psia**	**15.025 psia**
Total GPM Ethane+	5.996	6.029	6.150
Total GPM Iso-Pentane+	0.504	0.507	0.517
Compressibility (Z)	0.9963	0.9963	0.9962
Specific Gravity (Air=1) @ 60 °F	0.7479	0.7479	0.7479
Molecular Weight	21.588	21.588	21.588

Gross Heating Value	**14.650 psia**	**14.730 psia**	**15.025 psia**
Dry, Real (BTU/Ft^3)	1262.5	1269.5	1295.0
Wet, Real (BTU/Ft^3)	1240.6	1247.4	1272.4
Dry, Ideal (BTU/Ft^3)	1257.9	1264.7	1290.1
Wet, Ideal (BTU/Ft^3)	1236.0	1242.7	1267.6

Temperature base 60 °F

Comment: FIELD H2S = 0 PPM

Verified by

Mostaq Ahammad
Petroleum Chemist

Approved by

Deann Friend
Laboratory Manager

Produced Water Samples

Collection Date	1/19/2018	2/15/2018	3/27/2018	4/11/2018	5/8/2018	6/7/2018	8/14/2018	Average (model input)
pH	6.3	6.31	6.38	6.21	6.2	6.4	6.2	6.3
bicarbonate	122	195.2	170.8	183	183	170.8	158.6	169.1
dissolved CO2	330	210	270	260	280	220	340	273
dissolved H2S						0	0.1	0.1
Ba	2.36	2.14	1.99	2.7	2.69	2.53	2.44	2.41
Ca	6686.22	6467.31	6600	8960	12800	10900	9140	8793
Mg	1145.69	1070.41	934	1340	1820	1570	1310	1313
Cl	73927.672	75384.05	73349	90181	104922.896	113080	96580	89632
SO4	302.528	324.087	263	325	351.165	757	378.092	385.839
K							789	789
Na	44125.52	46408.95	40500	45400	54200	49300	51800	47391
Sr	688.57	616.03	707	889	952	886	855	799
Fe	6.52	8.92	20.9	30.2	26.1	22.3	22.9	19.7
Br							840.536	841
TDS	127008.3	130478.3	122547.6	147312.9	175261.1	176691.4	160249.2	148507.0
B							58.2	58.2
specific gravity	1.094	1.098	1.104	1.11	1.129	1.118	1.11	1.109

AVALON

CHAMPIONX

Complete Water Analysis Report

Customer: **OXY PERMIAN RESOURCES - NM**
Region: **Carlsbad, NM**
Location: **Guacamole Lease**
System: **Production System**

Equipment: **Guacamole CC 24-23 Fed 12H**
Sample Point: **Well Head**
Sample ID: **AO52287**
Acct Rep Email: **William.VanGlider@championx.com**

Collection Date: **02/13/2020**
Receive Date: **02/17/2020**
Report Date: **02/20/2020**
Location Code: **429749**

Field Analysis

Bicarbonate	**3080.00** mg/L	Dissolved CO2	**270.00** mg/L	Dissolved H2S	**0** mg/L
Pressure Surface	**300** psi	Temperature	**68** ° F	pH of Water	**6.48**
Oil per Day	**1500** B/D	Gas per Day	**643** Mcf/D	Water per Day	**5072** B/D

Sample Analysis

Calculated Gaseous CO2	**38.62** %	Calculated pH	**6.48**	Conductivity (Calculated)	**252703** µS - cm3
Ionic Strength	**2.84**	Resistivity	**0.040** ohms - m	Specific Gravity	**1.122**
Total Dissolved Solids	**163975** mg/L				

Cations

Iron	**20.5** mg/L	Manganese	**0.505** mg/L	Barium	**0.828** mg/L
Strontium	**337** mg/L	Calcium	**2000** mg/L	Magnesium	**417** mg/L
Sodium	**61300.00** mg/L	Potassium	**1150** mg/L	Boron	**30.2** mg/L
Lithium	**25.6** mg/L	Copper	**<0.050** mg/L	Nickel	**<0.100** mg/L
Zinc	**0.138** mg/L	Lead	**<0.500** mg/L	Cobalt	**<0.050** mg/L
Chromium	**<0.050** mg/L	Silicon	**15.2** mg/L	Aluminum	**<0.300** mg/L
Molybdenum	**<0.050** mg/L				

Anions

Bromide	**985.428** mg/L	Chloride	**93748** mg/L	Fluoride	**17.634** mg/L
Sulfate	**847.269** mg/L				

Chemical Residual

PTB Value

	Barite PTB	Calcite PTB	Celestite PTB	Gypsum PTB	Halite PTB	Iron Carbonate PTB	Iron Sulfide PTB
50°	0.38	589.26	34.62	0.00	0.00	10.32	0.00
75°	0.32	669.84	51.01	0.00	0.00	13.15	0.00
100°	0.24	723.77	69.22	0.00	0.00	14.14	0.00
125°	0.14	761.45	87.73	0.00	0.00	14.54	0.00
150°	0.03	788.66	105.68	0.00	0.00	14.71	0.00
175°	0.00	808.81	122.39	0.00	0.00	14.80	0.00
200°	0.00	824.04	137.46	0.00	0.00	14.84	0.00
225°	0.00	835.76	150.76	0.00	0.00	14.86	0.00
250°	0.00	844.90	162.34	0.00	0.00	14.88	0.00
275°	0.00	852.11	172.33	0.00	0.00	14.88	0.00
300°	0.00	857.84	180.98	0.00	0.00	14.89	0.00
325°	0.00	862.43	188.50	0.00	0.00	14.89	0.00
350°	0.00	866.10	195.09	0.00	0.00	14.89	0.00
375°	0.00	869.04	200.85	0.00	0.00	14.90	0.00
400°	0.00	871.39	205.80	0.00	0.00	14.90	0.00

Saturation Index

	Barite SI	Calcite SI	Celestite SI	Gypsum SI	Halite SI	Iron Carbonate SI
50°	0.66	1.14	0.09	-0.82	-0.97	0.52
75°	0.46	1.45	0.14	-0.81	-0.98	0.94
100°	0.29	1.71	0.20	-0.79	-0.99	1.30
125°	0.15	1.96	0.26	-0.77	-1.00	1.62
150°	0.02	2.18	0.33	-0.75	-1.01	1.89
175°	-0.08	2.38	0.40	-0.76	-1.01	2.13
200°	-0.16	2.57	0.40	-0.77	-1.02	2.34
225°	-0.24	2.75	0.54	-0.81	-1.02	2.51
250°	-0.30	2.92	0.61	-0.85	-1.02	2.66
275°	-0.36	3.08	0.67	-0.89	-1.02	2.79
300°	-0.42	3.23	0.74	-0.92	-1.02	2.89
325°	-0.47	3.38	0.80	-0.92	-1.02	2.97
350°	-0.53	3.52	0.86	-0.88	-1.02	3.03
375°	-0.60	3.66	0.91	-0.76	-1.01	3.06
400°	-0.67	3.79	0.97	-0.56	-1.00	3.07

Scaling predictions calculated using Scale Soft Pitzer 2019

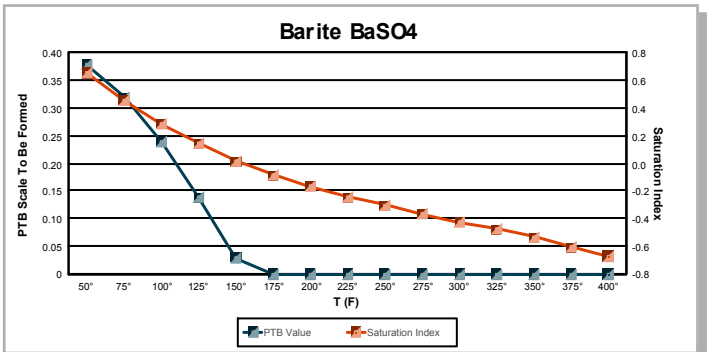
Scaling predictions dependent on provided field data. Incomplete/partial field data may impact results generated by scaling software.

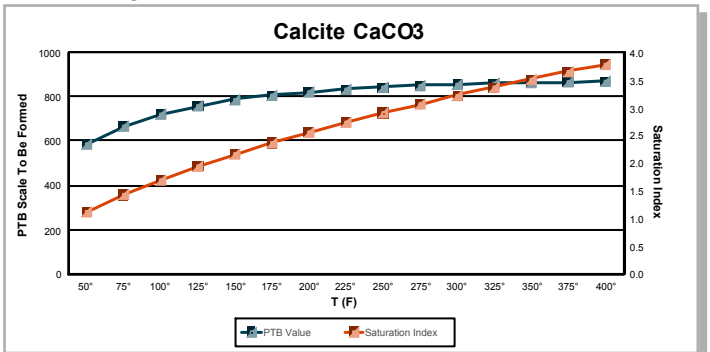
Complete Water Analysis Report

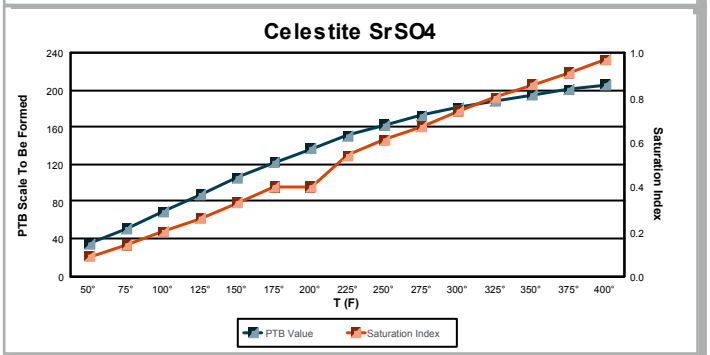
Customer: **OXY PERMIAN RESOURCES - NM**
Region: **Carlsbad, NM**
Location: **Guacamole Lease**
System: **Production System**

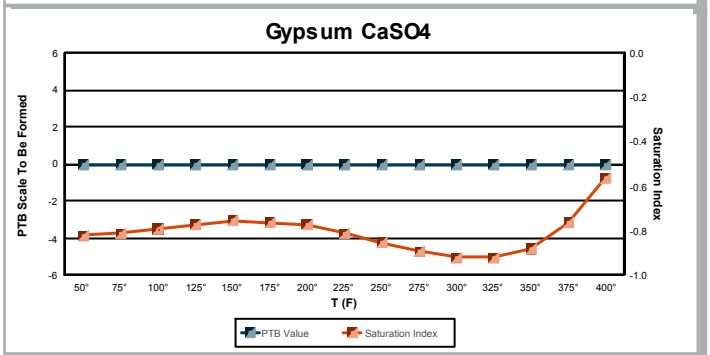
Equipment: **Guacamole CC 24-23 Fed 12H**
Sample Point: **Well Head**
Sample ID: **AO52287**
Acct Rep Email: **William.VanGlider@championx.com**

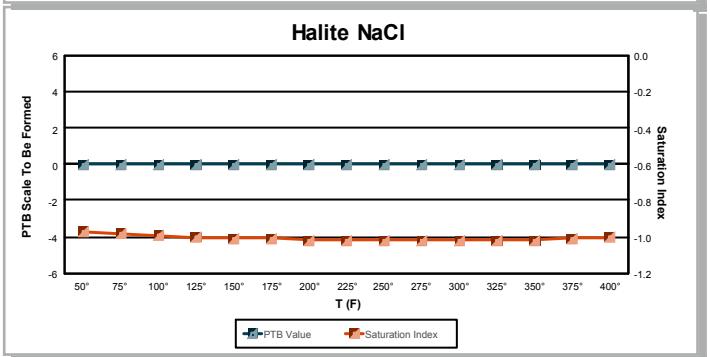
Collection Date: **02/13/2020**
Receive Date: **02/17/2020**
Report Date: **02/20/2020**
Location Code: **429749**

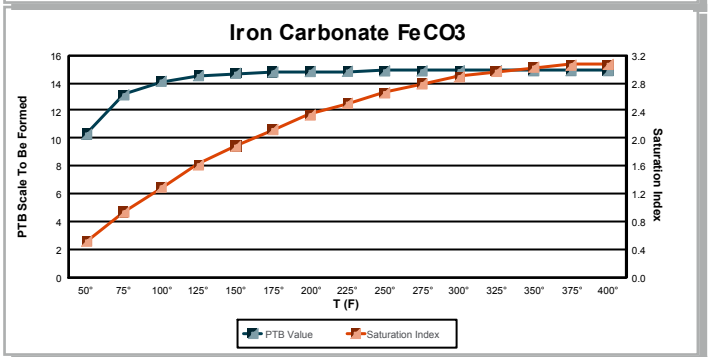


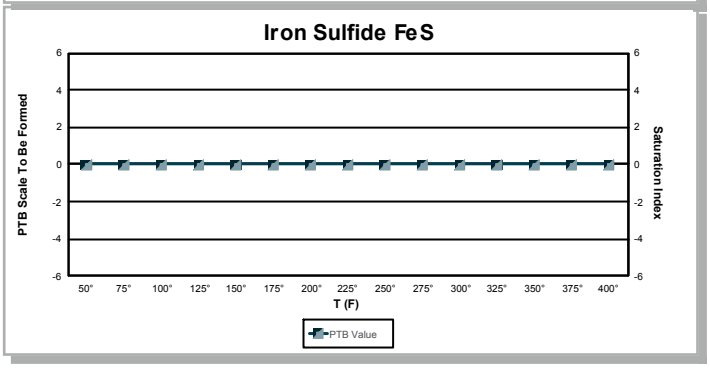












Comments

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1ST BONE SPRING

NALCO Champion
An Ecolab Company

Complete Water Analysis Report

Customer: **OXY PERMIAN RESOURCES - NM**
Region: **Carlsbad, NM**
Location: **Cedar Canyon Lease**
System: **Production System**

Equipment: **CEDAR CANYON 23 001H**
Sample Point: **Well Head**
Sample ID: **AO75213**
Acct Rep Email: **William.VanGlider@ecolab.com**

Collection Date: **03/19/2020**
Receive Date: **03/20/2020**
Report Date: **03/27/2020**
Location Code: **153519**

Field Analysis

Bicarbonate	**402.60** mg/L	Dissolved CO2	**300.00** mg/L	Dissolved H2S	**0.00** mg/L
Pressure Surface	**150.00** psi	Temperature	**73.50** ° F	pH of Water	**6.30**
Oil per Day	**8.00** B/D	Gas per Day	**0.00** Mcf/D	Water per Day	**33** B/D

Sample Analysis

Calculated Gaseous CO2	**7.64** %	Calculated pH	**6.30**	Conductivity (Calculated)	**244965** µS - cm3
Ionic Strength	**2.81**	Resistivity	**0.041** ohms - m	Specific Gravity	**1.121**
Total Dissolved Solids	**158834** mg/L				

Cations

Iron	**30.9** mg/L	Manganese	**0.585** mg/L	Barium	**1.63** mg/L
Strontium	**526** mg/L	Calcium	**2420** mg/L	Magnesium	**458** mg/L
Sodium	**62900.00** mg/L	Potassium	**1010** mg/L	Boron	**19** mg/L
Lithium	**43.6** mg/L	Copper	**0.084** mg/L	Nickel	**<0.100** mg/L
Zinc	**<0.100** mg/L	Lead	**<0.500** mg/L	Cobalt	**<0.050** mg/L
Chromium	**<0.050** mg/L	Silicon	**7.37** mg/L	Molybdenum	**<0.050** mg/L

Anions

Bromide	**944.64** mg/L	Chloride	**89722** mg/L	Sulfate	**347.151** mg/L

PTB Value

	Barite PTB	Calcite PTB	Celestite PTB	Gypsum PTB	Halite PTB	Iron Carbonate PTB	Iron Sulfide PTB
50°	0.68	16.86	0.00	0.00	0.00	0.00	0.00
75°	0.51	30.95	0.00	0.00	0.00	0.00	0.00
100°	0.29	43.92	0.00	0.00	0.00	5.80	0.00
125°	0.02	55.14	5.39	0.00	0.00	11.58	0.00
150°	0.00	64.74	27.52	0.00	0.00	15.29	0.00
175°	0.00	72.86	48.61	0.00	0.00	17.63	0.00
200°	0.00	79.69	68.05	0.00	0.00	19.09	0.00
225°	0.00	85.42	85.56	0.00	0.00	20.02	0.00
250°	0.00	90.21	101.13	0.00	0.00	20.62	0.00
275°	0.00	94.21	114.84	0.00	0.00	21.01	0.00
300°	0.00	97.52	126.94	0.00	0.00	21.26	0.00
325°	0.00	100.28	137.66	0.00	0.00	21.43	0.00
350°	0.00	102.55	147.22	0.00	0.00	21.52	0.00
375°	0.00	104.41	155.72	0.00	0.00	21.57	0.00
400°	0.00	105.91	163.16	0.00	0.00	21.56	0.00

Saturation Index

	Barite SI	Calcite SI	Celestite SI	Gypsum SI	Halite SI	Iron Carbonate SI
50°	0.53	0.21	-0.15	-1.19	-0.97	-0.37
75°	0.33	0.40	-0.11	-1.18	-0.99	-0.08
100°	0.15	0.59	-0.05	-1.16	-1.00	0.19
125°	0.01	0.76	0.02	-1.13	-1.01	0.43
150°	-0.12	0.94	0.09	-1.12	-1.02	0.65
175°	-0.22	1.10	0.16	-1.11	-1.02	0.85
200°	-0.30	1.26	0.16	-1.12	-1.03	1.02
225°	-0.37	1.41	0.31	-1.15	-1.03	1.16
250°	-0.43	1.56	0.38	-1.19	-1.03	1.29
275°	-0.49	1.71	0.45	-1.22	-1.03	1.39
300°	-0.54	1.85	0.52	-1.25	-1.03	1.47
325°	-0.60	1.98	0.58	-1.25	-1.03	1.53
350°	-0.65	2.11	0.64	-1.20	-1.03	1.57
375°	-0.72	2.22	0.70	-1.08	-1.02	1.59
400°	-0.79	2.33	0.76	-0.88	-1.01	1.58

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NALCO Champion
An Ecolab Company

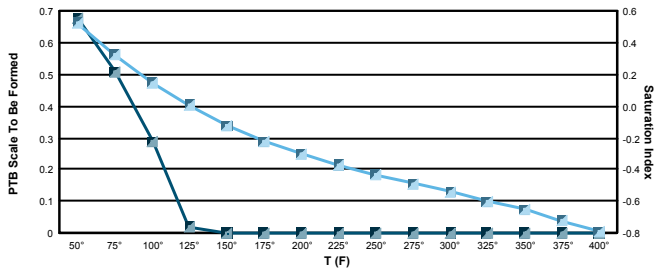
Complete Water Analysis Report

Customer: **OXY PERMIAN RESOURCES - NM**
Region: **Carlsbad, NM**
Location: **Cedar Canyon Lease**
System: **Production System**

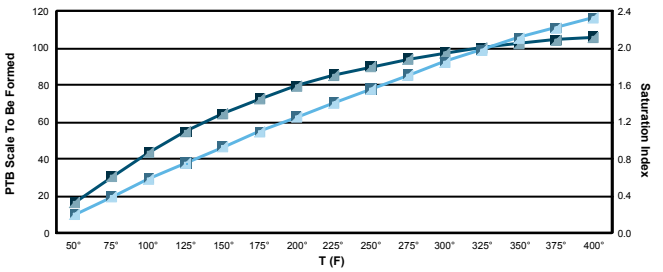
Equipment: **CEDAR CANYON 23 001H**
Sample Point: **Well Head**
Sample ID: **AO75213**
Acct Rep Email: **William.VanGlider@ecolab.com**

Collection Date: **03/19/2020**
Receive Date: **03/20/2020**
Report Date: **03/27/2020**
Location Code: **153519**

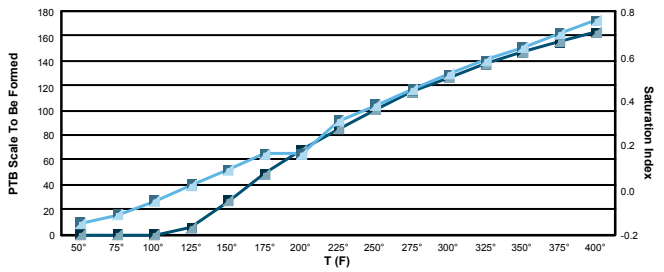
Barite BaSO4



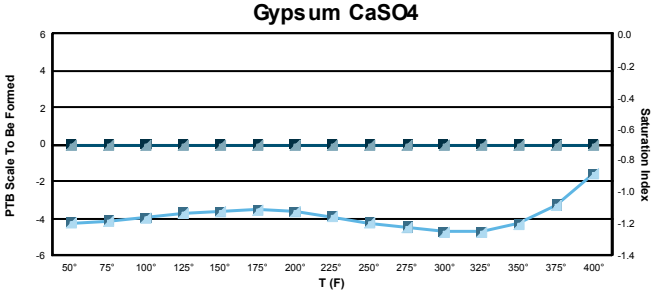
Calcite CaCO3



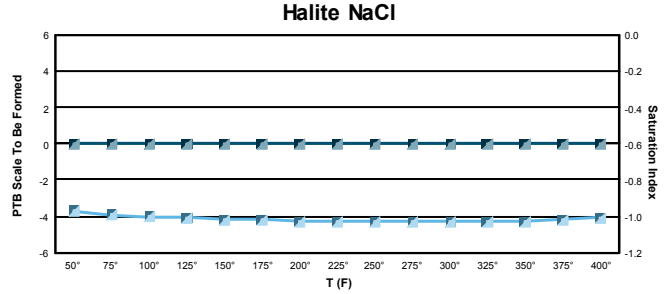
Celestite SrSO4



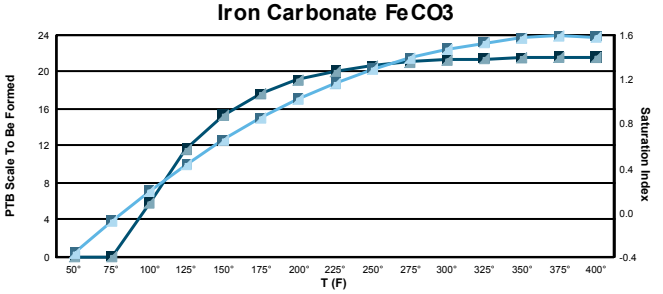
Gypsum CaSO4



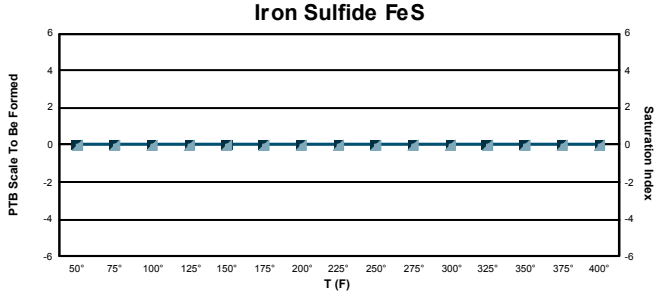
Halite NaCl



Iron Carbonate FeCO3



Iron Sulfide FeS



Comments

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2ND BONE SPRING

NALCO Champion
An Ecolab Company

Complete Water Analysis Report

Customer: **OXY PERMIAN RESOURCES - NM**
Region: **Carlsbad, NM**
Location: **Cedar Canyon Lease**
System: **Production System**

Equipment: **CEDAR CANYON 23 002H**
Sample Point: **Wellhead**
Sample ID: **AO81993**
Acct Rep Email: **william.vanglider@championX.com**

Collection Date: **03/25/2020**
Receive Date: **03/27/2020**
Report Date: **04/07/2020**
Location Code: **404344**

Field Analysis

Bicarbonate	**122.00** mg/L	Dissolved CO2	**250.00** mg/L	Dissolved H2S	**0** mg/L
Pressure Surface	**150** psi	Temperature	**74.8** ° F	pH of Water	**6.30**
Oil per Day	**34** B/D	Gas per Day	**198** Mcf/D	Water per Day	**258** B/D

Sample Analysis

Calculated Gaseous CO2	**2.46** %	Calculated pH	**6.30**	Conductivity (Calculated)	**192867** µS - cm3
Ionic Strength	**2.38**	Resistivity	**0.052** ohms - m	Specific Gravity	**1.098**
Total Dissolved Solids	**125161** mg/L				

Cations

Iron	**46.6** mg/L	Manganese	**2.3** mg/L	Barium	**0.296** mg/L
Strontium	**390** mg/L	Calcium	**7010** mg/L	Magnesium	**1180** mg/L
Sodium	**39400.00** mg/L	Potassium	**866** mg/L	Boron	**35** mg/L
Lithium	**19.9** mg/L	Copper	**<0.050** mg/L	Nickel	**0.153** mg/L
Zinc	**<0.100** mg/L	Lead	**<0.500** mg/L	Cobalt	**<0.050** mg/L
Chromium	**<0.050** mg/L	Silicon	**5.32** mg/L	Aluminum	**<0.300** mg/L
Molybdenum	**<0.050** mg/L				

Anions

Bromide	**748.356** mg/L	Chloride	**74339** mg/L	Fluoride	**2.582** mg/L
Sulfate	**992.989** mg/L				

PTB Value

	Barite PTB	Calcite PTB	Celestite PTB	Gypsum PTB	Halite PTB	Iron Carbonate PTB	Iron Sulfide PTB
50°	0.10	1.16	95.19	0.00	0.00	0.00	0.00
75°	0.04	9.67	93.35	0.00	0.00	0.00	0.00
100°	0.00	15.50	99.45	0.00	0.00	0.00	0.00
125°	0.00	19.69	110.16	0.00	0.00	4.01	0.00
150°	0.00	22.81	123.28	0.00	0.00	9.85	0.00
175°	0.00	25.17	137.26	0.00	0.00	14.15	0.00
200°	0.00	27.00	151.01	0.00	0.00	17.36	0.00
225°	0.00	28.43	163.95	0.00	0.00	19.77	0.00
250°	0.00	29.56	175.77	0.00	0.00	21.58	0.00
275°	0.00	30.45	186.36	0.00	0.00	22.90	0.00
300°	0.00	31.13	195.78	0.00	0.00	23.82	0.00
325°	0.00	31.66	204.13	0.00	0.00	24.37	0.00
350°	0.00	32.05	211.52	0.00	0.00	24.57	0.00
375°	0.00	32.32	217.99	0.00	0.00	24.41	0.00
400°	0.00	32.50	223.50	0.00	0.00	23.84	0.00

Saturation Index

	Barite SI	Calcite SI	Celestite SI	Gypsum SI	Halite SI	Iron Carbonate SI
50°	0.36	0.03	0.24	-0.18	-1.29	-0.80
75°	0.11	0.28	0.24	-0.21	-1.31	-0.45
100°	-0.10	0.51	0.26	-0.22	-1.33	-0.13
125°	-0.27	0.71	0.29	-0.21	-1.34	0.14
150°	-0.42	0.91	0.33	-0.22	-1.35	0.39
175°	-0.54	1.09	0.38	-0.23	-1.35	0.60
200°	-0.64	1.26	0.38	-0.25	-1.36	0.79
225°	-0.73	1.43	0.49	-0.29	-1.36	0.95
250°	-0.80	1.59	0.55	-0.34	-1.36	1.09
275°	-0.87	1.73	0.60	-0.39	-1.35	1.20
300°	-0.94	1.87	0.65	-0.42	-1.35	1.28
325°	-1.01	1.99	0.70	-0.43	-1.34	1.33
350°	-1.07	2.10	0.75	-0.39	-1.33	1.35
375°	-1.15	2.18	0.79	-0.29	-1.32	1.33
400°	-1.23	2.24	0.83	-0.09	-1.30	1.28

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NALCO Champion
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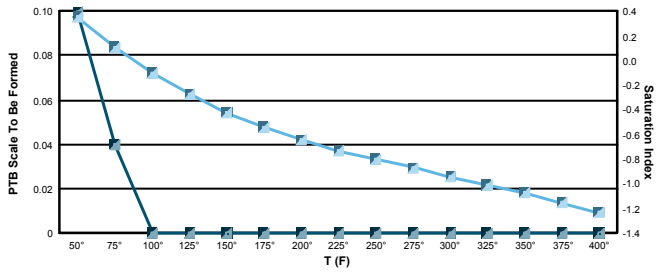
Complete Water Analysis Report

Customer: **OXY PERMIAN RESOURCES - NM**
Region: **Carlsbad, NM**
Location: **Cedar Canyon Lease**
System: **Production System**

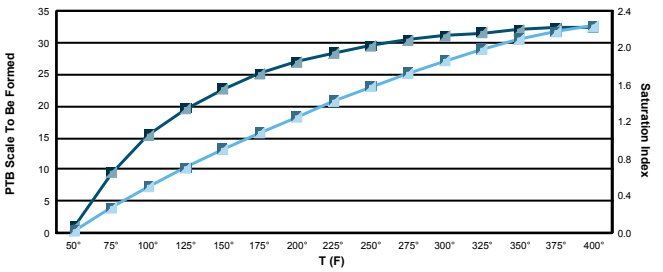
Equipment: **CEDAR CANYON 23 002H**
Sample Point: **Wellhead**
Sample ID: **AO81993**
Acct Rep Email: **william.vanglider@championX.com**

Collection Date: **03/25/2020**
Receive Date: **03/27/2020**
Report Date: **04/07/2020**
Location Code: **404344**

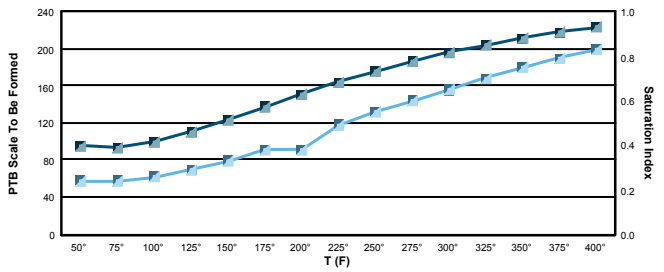
Barite BaSO4



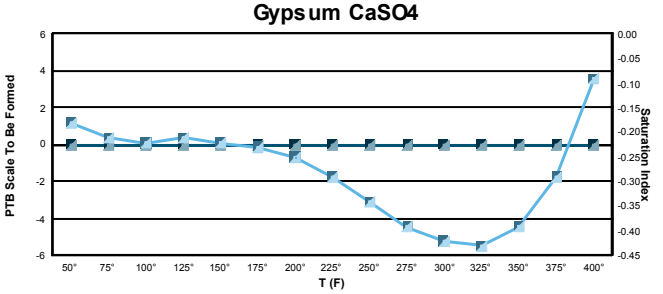
Calcite CaCO3



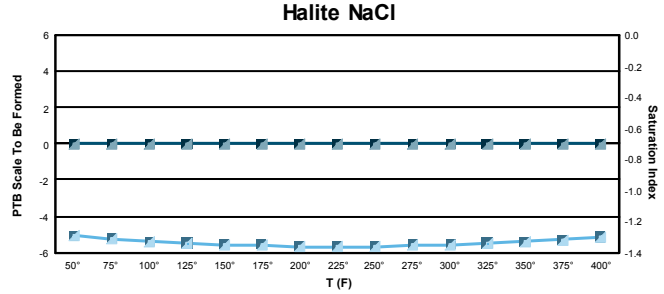
Celestite SrSO4



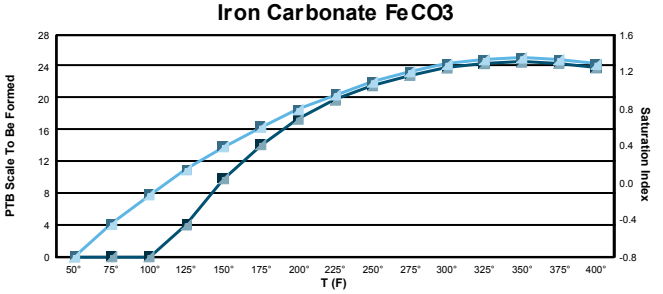
Gypsum CaSO4



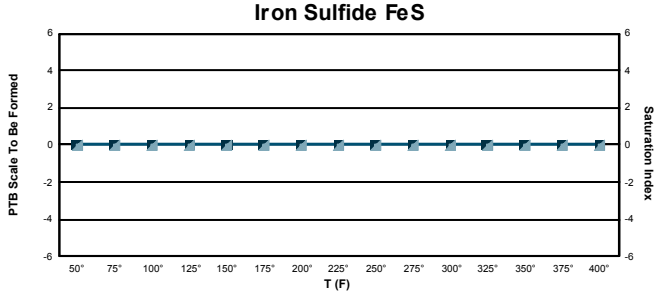
Halite NaCl



Iron Carbonate FeCO3



Iron Sulfide FeS



Comments

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2ND BONE SPRING

NALCO Champion
An Ecolab Company

Complete Water Analysis Report

Customer: **OXY PERMIAN RESOURCES - NM**
Region: **Carlsbad, NM**
Location: **Cedar Canyon 23 Lease**
System: **Production System**

Equipment: **Well 4H**
Sample Point: **Test Separator**
Sample ID: **AO75214**
Acct Rep Email: **William.VanGlider@ecolab.com**

Collection Date: **03/19/2020**
Receive Date: **03/20/2020**
Report Date: **03/27/2020**
Location Code: **289230**

Field Analysis

Bicarbonate	**61.00** mg/L	Dissolved CO2	**380.00** mg/L	Dissolved H2S	**0.00** mg/L
Pressure Surface	**150.00** psi	Temperature	**73.60** ° F	pH of Water	**6.30**
Oil per Day	**64.00** B/D	Gas per Day	**399.00** Mcf/D	Water per Day	**145** B/D

Sample Analysis

Calculated Gaseous CO2	**1.21** %	Calculated pH	**6.30**	Conductivity (Calculated)	**231833** µS - cm3
Ionic Strength	**3.02**	Resistivity	**0.043** ohms - m	Specific Gravity	**1.125**
Total Dissolved Solids	**150237** mg/L				

Cations

Iron	**56.1** mg/L	Manganese	**1.58** mg/L	Barium	**0.856** mg/L
Strontium	**648** mg/L	Calcium	**10300** mg/L	Magnesium	**1440** mg/L
Sodium	**59300.00** mg/L	Potassium	**961** mg/L	Boron	**41.5** mg/L
Lithium	**28.2** mg/L	Copper	**<0.050** mg/L	Nickel	**<0.100** mg/L
Zinc	**1.19** mg/L	Lead	**<0.500** mg/L	Cobalt	**<0.050** mg/L
Chromium	**<0.050** mg/L	Silicon	**8.04** mg/L	Aluminum	**<0.300** mg/L
Molybdenum	**<0.050** mg/L				

Anions

Bromide	**766.773** mg/L	Chloride	**76311** mg/L	Sulfate	**311.357** mg/L

PTB Value

	Barite PTB	Calcite PTB	Celestite PTB	Gypsum PTB	Halite PTB	Iron Carbonate PTB	Iron Sulfide PTB
50°	0.18	0.00	0.00	0.00	0.00	0.00	0.00
75°	0.00	0.07	0.00	0.00	0.00	0.00	0.00
100°	0.00	3.91	0.00	0.00	0.00	0.00	0.00
125°	0.00	6.65	0.00	0.00	0.00	0.00	0.00
150°	0.00	8.68	0.00	0.00	0.00	0.00	0.00
175°	0.00	10.22	19.74	0.00	0.00	2.69	0.00
200°	0.00	11.42	38.51	0.00	0.00	5.20	0.00
225°	0.00	12.35	55.76	0.00	0.00	7.03	0.00
250°	0.00	13.07	71.27	0.00	0.00	8.31	0.00
275°	0.00	13.63	85.00	0.00	0.00	9.14	0.00
300°	0.00	14.04	97.09	0.00	0.00	9.56	0.00
325°	0.00	14.33	107.73	0.00	0.00	9.58	0.00
350°	0.00	14.51	117.10	0.00	0.00	9.17	0.00
375°	0.00	14.59	125.29	0.00	0.00	8.28	0.00
400°	0.00	14.58	132.28	0.00	0.00	6.79	0.00

Saturation Index

	Barite SI	Calcite SI	Celestite SI	Gypsum SI	Halite SI	Iron Carbonate SI
50°	0.19	-0.24	-0.15	-0.67	-1.05	-1.17
75°	-0.05	0.00	-0.14	-0.70	-1.07	-0.82
100°	-0.25	0.22	-0.11	-0.70	-1.08	-0.52
125°	-0.42	0.41	-0.06	-0.69	-1.09	-0.26
150°	-0.56	0.59	0.00	-0.69	-1.10	-0.04
175°	-0.67	0.75	0.06	-0.70	-1.11	0.15
200°	-0.77	0.91	0.06	-0.73	-1.11	0.31
225°	-0.85	1.05	0.19	-0.77	-1.12	0.45
250°	-0.92	1.17	0.25	-0.81	-1.12	0.55
275°	-0.99	1.29	0.31	-0.86	-1.12	0.62
300°	-1.06	1.39	0.37	-0.90	-1.12	0.66
325°	-1.12	1.46	0.43	-0.91	-1.12	0.66
350°	-1.19	1.51	0.48	-0.87	-1.11	0.63
375°	-1.26	1.54	0.53	-0.77	-1.10	0.55
400°	-1.34	1.54	0.58	-0.57	-1.09	0.43

Scaling predictions calculated using Scale Soft Pitzer 2017
Scaling predictions dependent on provided field data. Incomplete/partial field data may impact results generated by scaling software.

NALCO Champion
An Ecolab Company

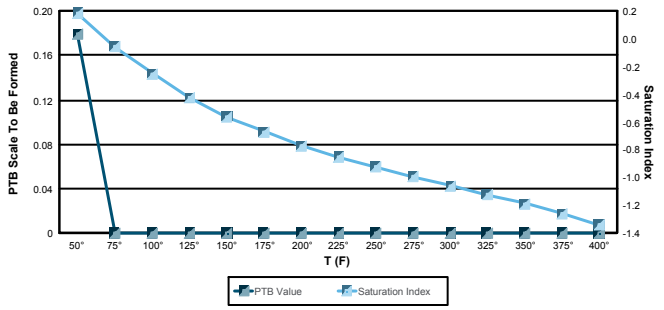
Complete Water Analysis Report

Customer: **OXY PERMIAN RESOURCES - NM**
Region: **Carlsbad, NM**
Location: **Cedar Canyon 23 Lease**
System: **Production System**

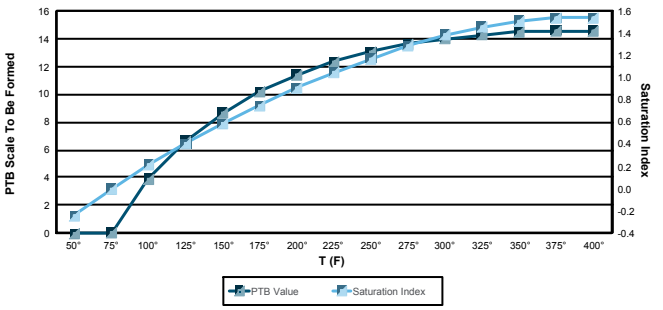
Equipment: **Well 4H**
Sample Point: **Test Separator**
Sample ID: **AO75214**
Acct Rep Email: **William.VanGlider@ecolab.com**

Collection Date: **03/19/2020**
Receive Date: **03/20/2020**
Report Date: **03/27/2020**
Location Code: **289230**

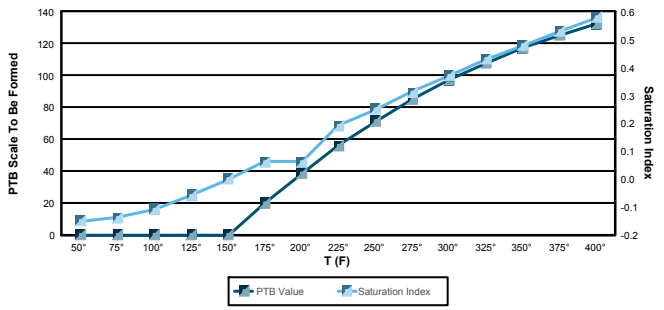
Barite BaSO4



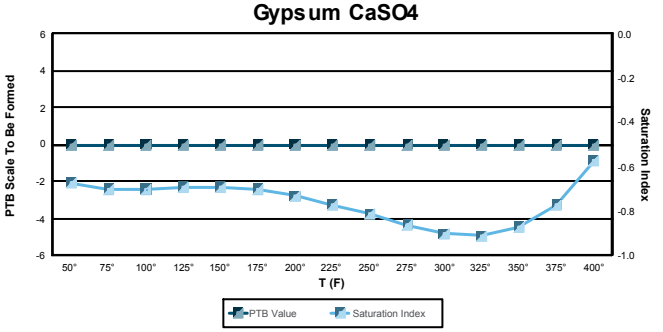
Calcite CaCO3



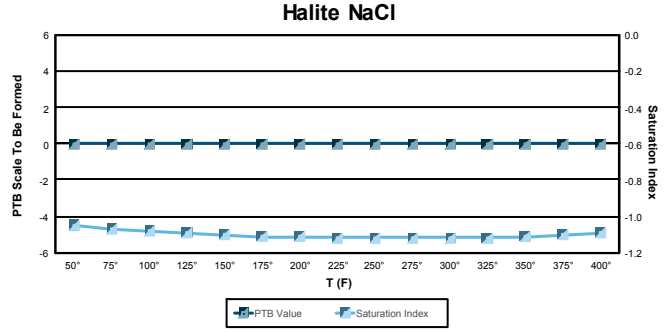
Celestite SrSO4



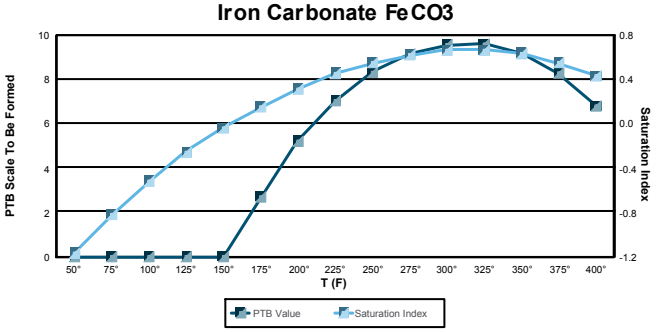
Gypsum CaSO4



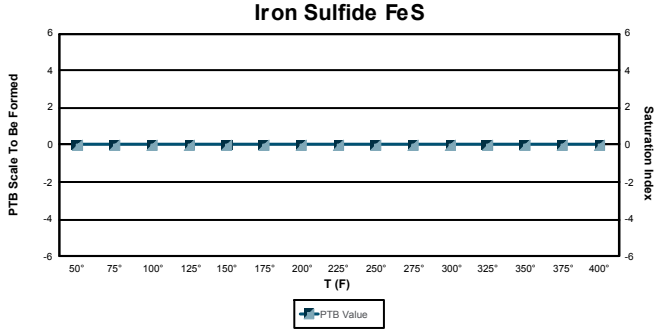
Halite NaCl



Iron Carbonate FeCO3



Iron Sulfide FeS



Comments

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3RD BONE SPRING

NALCO Champion
An Ecolab Company

Complete Water Analysis Report

Customer: **OXY USA WTP LP**
Region: **Carlsbad, NM**
Location: **Cedar Canyon 23-24**
System: **Production System**

Equipment: **Cedar Canyon 23-24 Fed com 34H**
Sample Point: **Wellhead**
Sample ID: **AM76453**
Acct Rep Email: **Ramon.Artalejo@ecolab.com**

Collection Date: **04/04/2019**
Receive Date: **04/11/2019**
Report Date: **04/16/2019**
Location Code: **405448**

Field Analysis

Bicarbonate	**134.2** mg/L	Dissolved CO2	**210** mg/L	Dissolved H2S	**0.7** mg/L
Pressure Surface	**315** psi	Temperature	**82** ° F	pH of Water	**7.13**

Sample Analysis

Calculated Gaseous CO2	**0.39** %	Calculated pH	**7.13**	Conductivity (Calculated)	**182364** µS - cm3
Ionic Strength	**2.23**	Resistivity	**0.055** ohms - m	Specific Gravity	**1.088**
Total Dissolved Solids	**118138** mg/L				

Cations

Iron	**21.1**	mg/L	Manganese	**1.04**	mg/L	Barium	**2.97**	mg/L
Strontium	**946**	mg/L	Calcium	**5500**	mg/L	Magnesium	**835**	mg/L
Sodium	**41800.00**	mg/L	Potassium	**725**	mg/L	Boron	**83.9**	mg/L
Copper	**0.014**	mg/L	Nickel	**0.023**	mg/L	Zinc	**0.105**	mg/L
Lead	**0.182**	mg/L	Cobalt	**0.025**	mg/L	Chromium	**0.008**	mg/L
Silicon	**12.7**	mg/L	Aluminum	**Not Detected**	mg/L	Molybdenum	**0.015**	mg/L
Phosphorus	**Not Detected**	mg/L						

Anions

Bromide	**576.495**	mg/L	Chloride	**67188**	mg/L	Fluoride	**4.151**	mg/L
Sulfate	**306.433**	mg/L						

PTB Value

	Barite PTB	Calcite PTB	Celestite PTB	Gypsum PTB	Halite PTB	Iron Carbonate PTB	Iron Sulfide PTB
50°	1.50	14.10	23.17	0.00	0.00	0.00	0.72
75°	1.31	17.44	27.80	0.00	0.00	0.00	0.70
100°	1.04	20.27	38.59	0.00	0.00	0.75	0.70
125°	0.70	22.67	52.43	0.00	0.00	3.68	0.71
150°	0.31	24.72	67.47	0.00	0.00	5.99	0.72
175°	0.00	26.49	82.44	0.00	0.00	7.76	0.74
200°	0.00	28.01	96.53	0.00	0.00	9.10	0.76
225°	0.00	29.33	109.34	0.00	0.00	10.09	0.78
250°	0.00	30.48	120.75	0.00	0.00	10.79	0.80
275°	0.00	31.47	130.73	0.00	0.00	11.26	0.82
300°	0.00	32.31	139.44	0.00	0.00	11.54	0.84
325°	0.00	33.04	147.03	0.00	0.00	11.65	0.85
350°	0.00	33.64	153.64	0.00	0.00	11.58	0.87
375°	0.00	34.14	159.36	0.00	0.00	11.32	0.88
400°	0.00	34.53	164.23	0.00	0.00	10.84	0.88

Saturation Index

	Barite SI	Calcite SI	Celestite SI	Gypsum SI	Halite SI	Iron Carbonate SI	Iron Sulfide SI
50°	0.82	0.64	0.07	-0.82	-1.32	-0.44	0.69
75°	0.58	0.80	0.08	-0.84	-1.34	-0.18	0.65
100°	0.39	0.95	0.12	-0.83	-1.36	0.05	0.63
125°	0.22	1.09	0.16	-0.82	-1.37	0.25	0.64
150°	0.08	1.21	0.22	-0.81	-1.38	0.43	0.66
175°	-0.03	1.34	0.28	-0.81	-1.38	0.57	0.69
200°	-0.12	1.45	0.28	-0.83	-1.38	0.70	0.73
225°	-0.20	1.56	0.40	-0.86	-1.38	0.80	0.78
250°	-0.27	1.66	0.47	-0.90	-1.38	0.87	0.84
275°	-0.33	1.76	0.53	-0.94	-1.38	0.92	0.89
300°	-0.39	1.84	0.59	-0.97	-1.37	0.95	0.95
325°	-0.45	1.91	0.65	-0.97	-1.36	0.95	1.00
350°	-0.51	1.98	0.71	-0.92	-1.35	0.92	1.05
375°	-0.58	2.03	0.76	-0.81	-1.34	0.87	1.09
400°	-0.66	2.07	0.82	-0.60	-1.32	0.80	1.13

Scaling predictions calculated using Scale Soft Pitzer 2017
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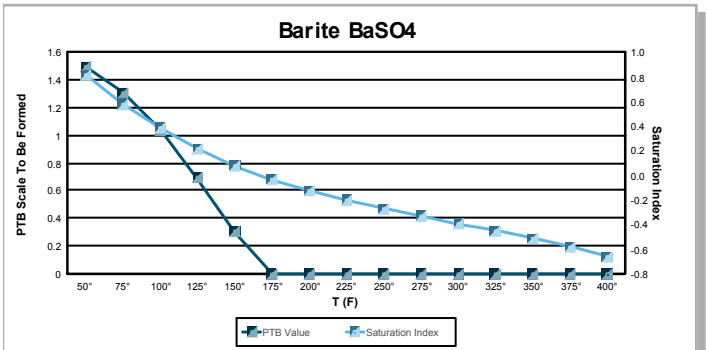
NALCO Champion
An Ecolab Company

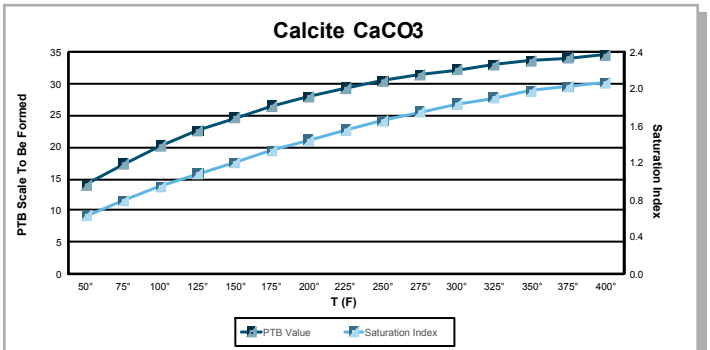
Complete Water Analysis Report

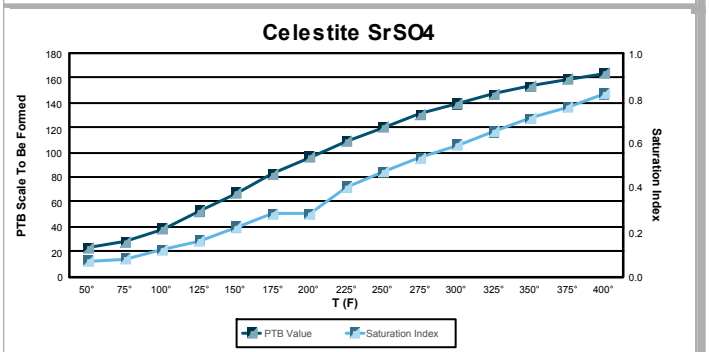
Customer: **OXY USA WTP LP**
Region: **Carlsbad, NM**
Location: **Cedar Canyon 23-24**
System: **Production System**

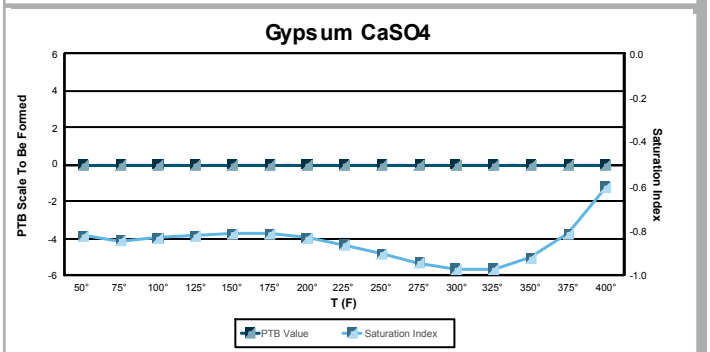
Equipment: **Cedar Canyon 23-24 Fed com 34H**
Sample Point: **Wellhead**
Sample ID: **AM76453**
Acct Rep Email: **Ramon.Artalejo@ecolab.com**

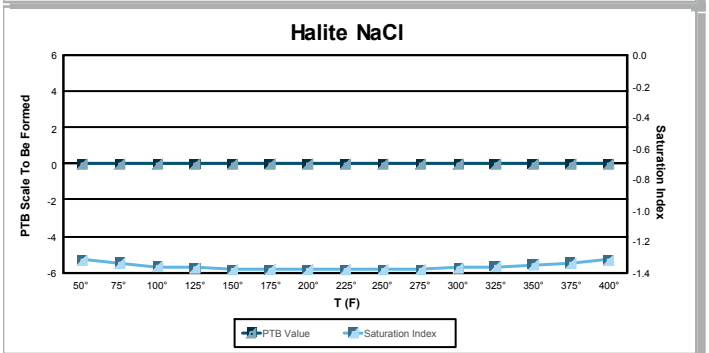
Collection Date: **04/04/2019**
Receive Date: **04/11/2019**
Report Date: **04/16/2019**
Location Code: **405448**

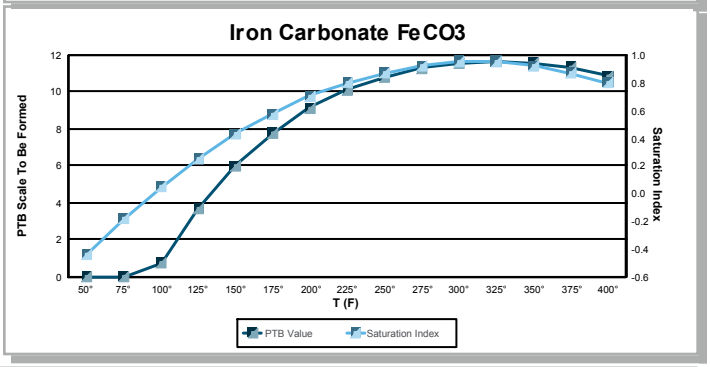


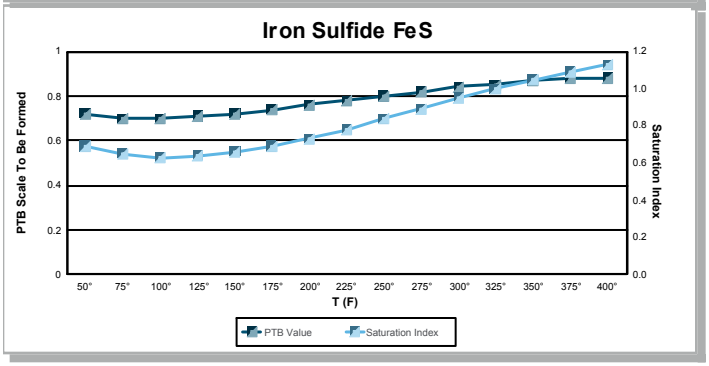












Comments

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2ND BONE SPRING

NALCO Champion
An Ecolab Company

Complete Water Analysis Report

Customer: **OXY PERMIAN RESOURCES - NM**
Region: **Carlsbad, NM**
Location: **Cedar Canyon Lease**
System: **Production System**

Equipment: **CEDAR CANYON 23 FEDERAL CO 006** Collection Date: **03/19/2020**
Sample Point: **Well Head**
Sample ID: **AO75216**
Acct Rep Email: **William.VanGlider@ecolab.com**

Receive Date: **03/20/2020**
Report Date: **03/27/2020**
Location Code: **391670**

Field Analysis

Bicarbonate	**122.00** mg/L	Dissolved CO2	**410.00** mg/L	Dissolved H2S	**0.00** mg/L
Pressure Surface	**150.00** psi	Temperature	**74.70** ° F	pH of Water	**6.40**
Oil per Day	**155.00** B/D	Gas per Day	**780.00** Mcf/D	Water per Day	**240** B/D

Sample Analysis

Calculated Gaseous CO2	**1.90** %	Calculated pH	**6.40**	Conductivity (Calculated)	**254967** µS - cm3
Ionic Strength	**3.24**	Resistivity	**0.039** ohms - m	Specific Gravity	**1.129**
Total Dissolved Solids	**165197** mg/L				

Cations

Iron	**57.1** mg/L	Manganese	**1.59** mg/L	Barium	**1.19** mg/L
Strontium	**674** mg/L	Calcium	**10200** mg/L	Magnesium	**1440** mg/L
Sodium	**60700.00** mg/L	Potassium	**976** mg/L	Boron	**40.3** mg/L
Lithium	**28.8** mg/L	Copper	**<0.050** mg/L	Nickel	**<0.100** mg/L
Zinc	**<0.100** mg/L	Lead	**<0.500** mg/L	Cobalt	**<0.050** mg/L
Chromium	**<0.050** mg/L	Silicon	**7.65** mg/L	Aluminum	**<0.300** mg/L
Molybdenum	**<0.050** mg/L				

Anions

Bromide	**906.531** mg/L	Chloride	**89703** mg/L	Sulfate	**337.901** mg/L

PTB Value

	Barite PTB	Calcite PTB	Celestite PTB	Gypsum PTB	Halite PTB	Iron Carbonate PTB	Iron Sulfide PTB
50°	0.42	9.88	0.00	0.00	0.00	0.00	0.00
75°	0.20	16.05	0.00	0.00	0.00	0.00	0.00
100°	0.00	20.21	0.00	0.00	0.00	0.00	0.00
125°	0.00	23.18	3.26	0.00	0.00	7.35	0.00
150°	0.00	25.38	20.09	0.00	0.00	12.65	0.00
175°	0.00	27.05	37.48	0.00	0.00	16.54	0.00
200°	0.00	28.35	54.27	0.00	0.00	19.41	0.00
225°	0.00	29.37	69.85	0.00	0.00	21.52	0.00
250°	0.00	30.17	83.93	0.00	0.00	23.06	0.00
275°	0.00	30.81	96.45	0.00	0.00	24.11	0.00
300°	0.00	31.30	107.53	0.00	0.00	24.73	0.00
325°	0.00	31.66	117.35	0.00	0.00	24.92	0.00
350°	0.00	31.91	126.06	0.00	0.00	24.68	0.00
375°	0.00	32.07	133.75	0.00	0.00	23.95	0.00
400°	0.00	32.14	140.33	0.00	0.00	22.65	0.00

Saturation Index

	Barite SI	Calcite SI	Celestite SI	Gypsum SI	Halite SI	Iron Carbonate SI
50°	0.39	0.29	-0.06	-0.59	-0.95	-0.64
75°	0.14	0.53	-0.06	-0.62	-0.97	-0.30
100°	-0.06	0.74	-0.03	-0.63	-0.98	0.00
125°	-0.24	0.93	0.01	-0.62	-0.99	0.26
150°	-0.38	1.11	0.06	-0.63	-1.00	0.48
175°	-0.50	1.27	0.11	-0.64	-1.01	0.67
200°	-0.60	1.42	0.11	-0.67	-1.01	0.83
225°	-0.69	1.56	0.23	-0.71	-1.02	0.96
250°	-0.77	1.68	0.28	-0.76	-1.02	1.07
275°	-0.84	1.80	0.34	-0.81	-1.03	1.14
300°	-0.91	1.91	0.39	-0.85	-1.03	1.19
325°	-0.98	1.99	0.43	-0.86	-1.03	1.21
350°	-1.05	2.06	0.48	-0.83	-1.02	1.19
375°	-1.13	2.11	0.52	-0.73	-1.02	1.13
400°	-1.22	2.13	0.56	-0.54	-1.01	1.04

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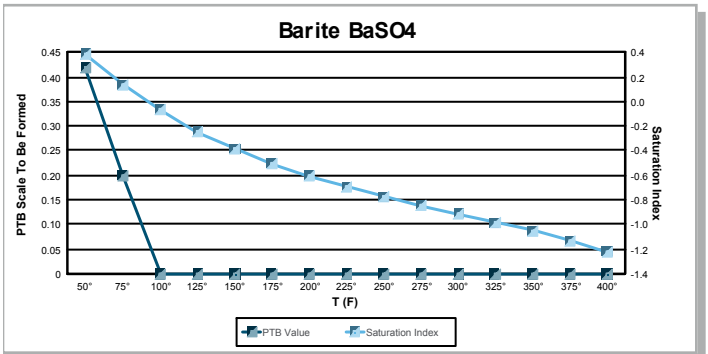
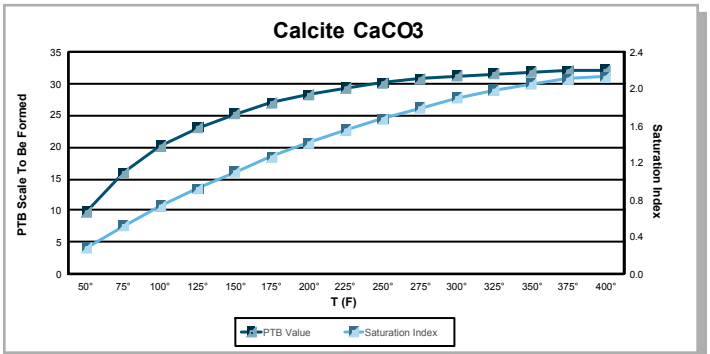
NALCO Champion
An Ecolab Company

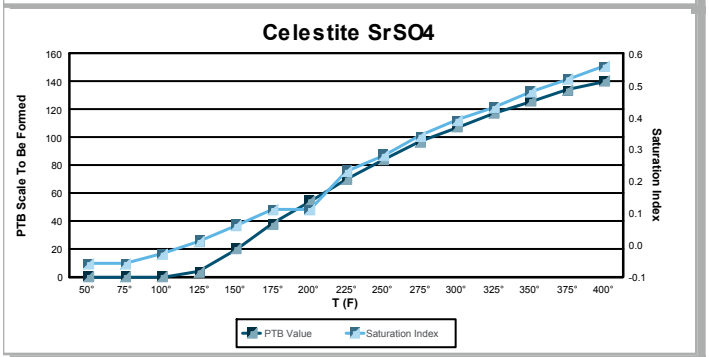
Complete Water Analysis Report

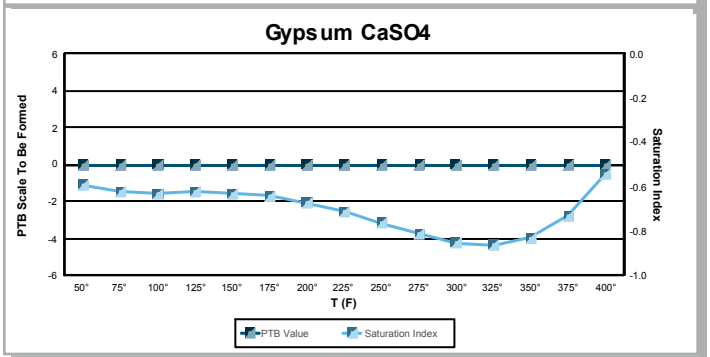
Customer: **OXY PERMIAN RESOURCES - NM**
Region: **Carlsbad, NM**
Location: **Cedar Canyon Lease**
System: **Production System**

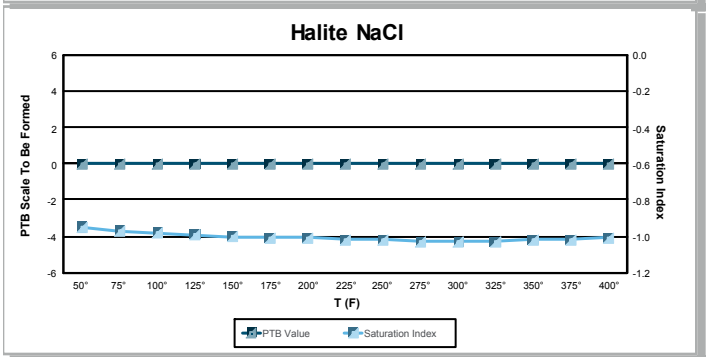
Equipment: **CEDAR CANYON 23 FEDERAL CO 006** Collection Date: **03/19/2020**
Sample Point: **Well Head** Receive Date: **03/20/2020**
Sample ID: **AO75216** Report Date: **03/27/2020**
Acct Rep Email: **William.VanGlider@ecolab.com** Location Code: **391670**

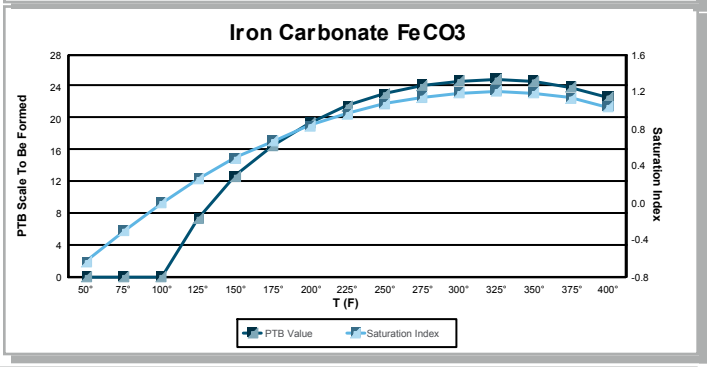


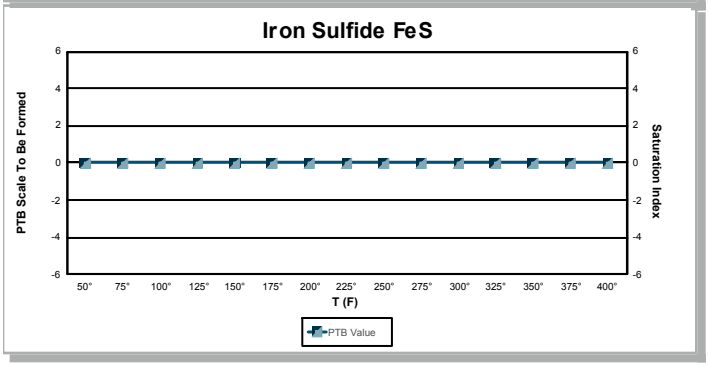












Comments

Scaling predictions calculated using Scale Soft Pitzer 2017
Scaling predictions dependent on provided field data. Incomplete/partial field data may impact results generated by scaling software.

WOLFCAMP XY

NALCO Champion
An Ecolab Company

Complete Water Analysis Report

Customer: **OXY PERMIAN RESOURCES - NM**
Region: **Carlsbad, NM**
Location: **Cedar Canyon Lease**
System: **Production System**

Equipment: **CEDAR CANYON 23 FEDERAL COM 03**
Sample Point: **Wellhead**
Sample ID: **AO75217**
Acct Rep Email: **William.VanGlider@ecolab.com**

Collection Date: **03/19/2020**
Receive Date: **03/20/2020**
Report Date: **03/27/2020**
Location Code: **397000**

Field Analysis

Bicarbonate	**97.60** mg/L	Dissolved CO2	**180.00** mg/L	Dissolved H2S	**0.00** mg/L
Pressure Surface	**150.00** psi	Temperature	**81.70** ° F	pH of Water	**6.30**
Oil per Day	**113.00** B/D	Gas per Day	**329.00** Mcf/D	Water per Day	**300** B/D

Sample Analysis

Calculated Gaseous CO2	**1.97** %	Calculated pH	**6.30**	Conductivity (Calculated)	**170647** µS - cm3
Ionic Strength	**2.08**	Resistivity	**0.059** ohms - m	Specific Gravity	**1.084**
Total Dissolved Solids	**110649** mg/L				

Cations

Iron	**10.3** mg/L	Manganese	**0.695** mg/L	Barium	**2.92** mg/L
Strontium	**922** mg/L	Calcium	**4760** mg/L	Magnesium	**734** mg/L
Sodium	**40800.00** mg/L	Potassium	**754** mg/L	Boron	**84.5** mg/L
Lithium	**21.4** mg/L	Copper	**<0.050** mg/L	Nickel	**<0.100** mg/L
Zinc	**<0.100** mg/L	Lead	**<0.500** mg/L	Cobalt	**<0.050** mg/L
Chromium	**<0.050** mg/L	Silicon	**12.8** mg/L	Aluminum	**<0.300** mg/L
Molybdenum	**<0.050** mg/L	Phosphorus	**<0.200** mg/L		

Anions

Bromide	**549.235** mg/L	Chloride	**61657** mg/L	Fluoride	**1.945** mg/L
Sulfate	**239.684** mg/L				

PTB Value

	Barite PTB	Calcite PTB	Celestite PTB	Gypsum PTB	Halite PTB	Iron Carbonate PTB	Iron Sulfide PTB
50°	1.41	0.00	0.00	0.00	0.00	0.00	0.00
75°	1.19	0.00	0.00	0.00	0.00	0.00	0.00
100°	0.88	4.35	7.90	0.00	0.00	0.00	0.00
125°	0.49	9.82	21.78	0.00	0.00	0.00	0.00
150°	0.04	13.79	36.61	0.00	0.00	0.00	0.00
175°	0.00	16.75	51.23	0.00	0.00	0.00	0.00
200°	0.00	18.99	64.87	0.00	0.00	0.13	0.00
225°	0.00	20.71	77.20	0.00	0.00	1.95	0.00
250°	0.00	22.03	88.08	0.00	0.00	3.18	0.00
275°	0.00	23.05	97.54	0.00	0.00	4.01	0.00
300°	0.00	23.82	105.72	0.00	0.00	4.53	0.00
325°	0.00	24.39	112.76	0.00	0.00	4.82	0.00
350°	0.00	24.81	118.81	0.00	0.00	4.92	0.00
375°	0.00	25.09	123.98	0.00	0.00	4.81	0.00
400°	0.00	25.26	128.31	0.00	0.00	4.48	0.00

Saturation Index

	Barite SI	Calcite SI	Celestite SI	Gypsum SI	Halite SI	Iron Carbonate SI
50°	0.73	-0.37	-0.03	-1.00	-1.38	-1.68
75°	0.50	-0.10	-0.01	-1.02	-1.40	-1.30
100°	0.31	0.15	0.03	-1.01	-1.42	-0.97
125°	0.14	0.37	0.08	-0.99	-1.43	-0.68
150°	0.01	0.59	0.14	-0.98	-1.43	-0.42
175°	-0.10	0.79	0.20	-0.98	-1.44	-0.19
200°	-0.19	0.97	0.20	-1.00	-1.44	0.01
225°	-0.26	1.15	0.34	-1.03	-1.44	0.18
250°	-0.33	1.32	0.41	-1.07	-1.44	0.33
275°	-0.38	1.48	0.47	-1.10	-1.43	0.44
300°	-0.44	1.62	0.54	-1.13	-1.43	0.53
325°	-0.49	1.75	0.60	-1.12	-1.42	0.59
350°	-0.55	1.85	0.67	-1.07	-1.40	0.60
375°	-0.61	1.94	0.73	-0.96	-1.39	0.58
400°	-0.67	1.99	0.79	-0.74	-1.37	0.52

Scaling predictions calculated using Scale Soft Pitzer 2017
Scaling predictions dependent on provided field data. Incomplete/partial field data may impact results generated by scaling software.

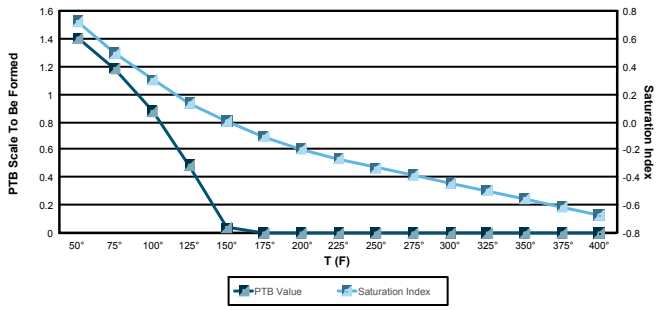
NALCO Champion
An Ecolab Company

Complete Water Analysis Report

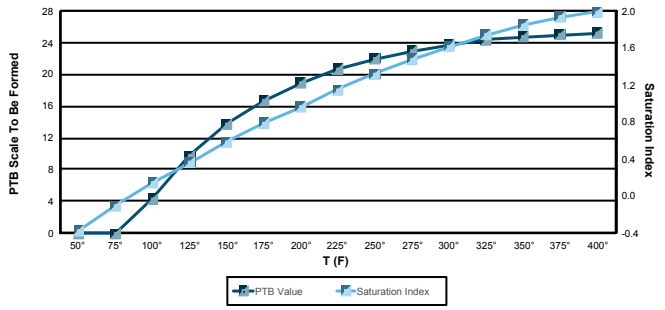
Customer: **OXY PERMIAN RESOURCES - NM**
Region: **Carlsbad, NM**
Location: **Cedar Canyon Lease**
System: **Production System**

Equipment: **CEDAR CANYON 23 FEDERAL COM 03** Collection Date: **03/19/2020**
Sample Point: **Wellhead** Receive Date: **03/20/2020**
Sample ID: **AO75217** Report Date: **03/27/2020**
Acct Rep Email: **William.VanGlider@ecolab.com** Location Code: **397000**

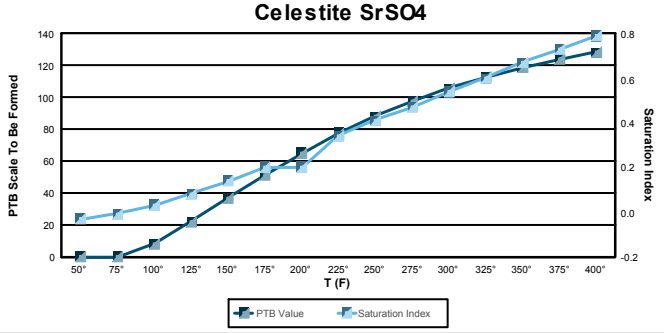
Barite BaSO4



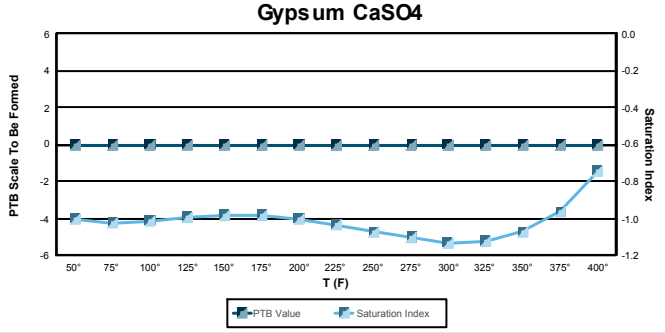
Calcite CaCO3



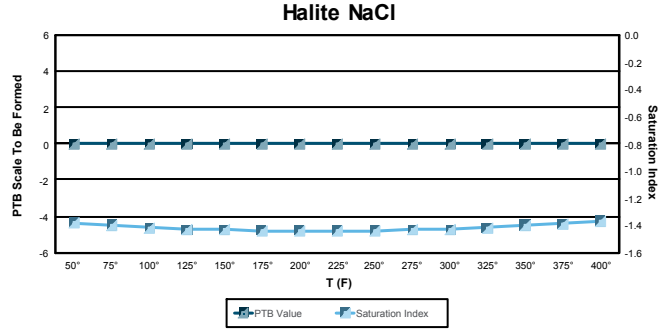
Celestite SrSO4



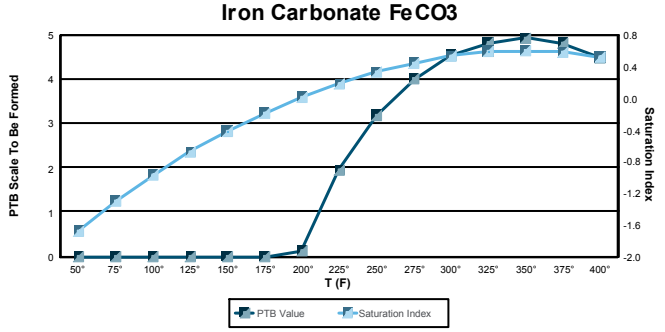
Gypsum CaSO4



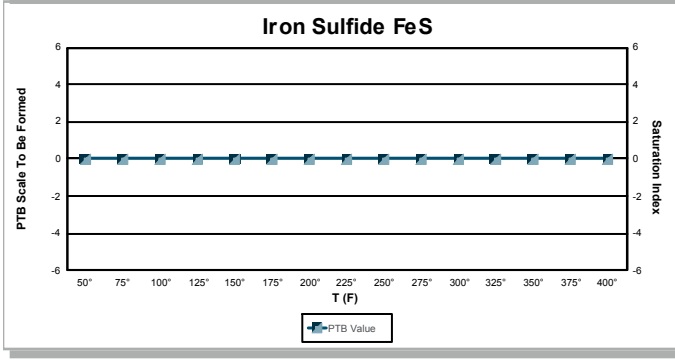
Halite NaCl



Iron Carbonate FeCO3



Iron Sulfide FeS



Comments

Scaling predictions calculated using Scale Soft Pitzer 2017
Scaling predictions dependent on provided field data. Incomplete/partial field data may impact results generated by scaling software.

Part VIII- Geologic Information for Guacamole CC 24-23 Federal 12H API 30-15-45871

The Cedar Canyon 23-24 Federal Com 33H will be injecting into the Avalon Shale of the Bone Spring Formation. The well has a TVD of 7,897 ft. with a lateral length of approximately 6,757 ft. It will be injecting into a reservoir composed of tight siltstone and shale (mudstone). Core data indicates that the grain sizes range from clay to fine siltstone (Folk, 1980). Samples show evidence of moderate compaction. Illite, smectite, kaolinite, and chlorite clays are found throughout the samples ranging from 10% to 35%. Cements are Fe-calcite, Fe-dolomite, with some quartz overgrowths. Minor amounts of pyrite (<1%) are present. The resulting reservoir rock has porosity of 3-15% with an average porosity of 10%. Permeability measured by injection fall-off tests conducted within the reservoir ranges from 0.1 millidarcies to 1 nanodarcies.

The injection area for this well is bounded by producing wells in the 1st Bone Spring Sand reservoir interval that is 330 ft. thick. An 80 ft. thick barrier of limestone is between the Lower Avalon Shale and the 1st Bone Spring Sand. Downward permeability is further limited by increasing lithostatic pressure with depth. Laterally the injection will be primarily contained by the reservoir volume that has been previously and partially depleted by the adjacent producing wells. The tight low-permeability reservoir and the production from the nearby wells will be the primary constraints on the conformance of the injection to the project area and are expected to contain the injected gas.

The top of the Bone Spring Formation is at 6,801 ft. (log depth) with over 700 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 3,700 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 211 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.

Locate freshwater wells within two miles:
An investigation of existing shallow water wells has not found any freshwater wells within a two mile radius of this injector.

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

Tony Troutman
Geological Advisor

2/2/2021
Date

Part VIII- Geologic Information for Guacamole CC 24 23 Federal 11H API 30-015-45870

The Guacamole CC 24 23 Federal 11H will be injecting into the 1st Bone Spring Sandstone of the Bone Spring Formation. The well has a TVD of 8,085 ft. with a lateral length of approximately 7,888 ft. It will be injecting into a reservoir composed of tight siltstone. Core data indicates that the grain sizes range from coarse siltstone to very-fine-grained subarkose (Folk, 1980) sandstone. Samples show evidence of moderate compaction. Minor amounts of illite and smectite clays are found throughout the samples ranging from 5% to 15%. Cements are Fe-calcite, Fe-dolomite, with some quartz overgrowths. Minor amounts of pyrite (<1%) are present. The resulting reservoir rock has porosity of 8-18% with an average porosity of 11.7%. Permeability measured by injection fall-off tests conducted within the reservoir ranges from 0.02 millidarcies to 0.001 millidarcies.

The injection area for this well is bounded by two producing wells in the same reservoir interval that is 330 ft. thick. Low-permeability barriers act as seals above the reservoir. The upper barrier consists of carbonate mudstone, dolomudstone, and shales that are 1,000 ft. thick. Below the well, the top of the 2nd Bone Spring Limestone is at 8,200 ft TVD, with the lateral being 250 ft. above it. The 2nd Bone Spring Limestone is a very low permeability carbonate mudstone that is 480 ft. thick. Downward permeability is further limited by increasing lithostatic pressure with depth. Laterally the injection will be primarily contained by the reservoir volume that has been previously and partially depleted by the adjacent producing wells. 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.

The top of the Bone Spring Formation is at 6,806 ft. (log depth) with over 1,000 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 3,700 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 620 ft. TVD 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 260 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.

Locate freshwater wells within two miles:
An investigation of existing shallow water wells has not found any freshwater wells within a two mile radius of this injector.

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

Tony Troutman
Geological Advisor

2/2/2021
Date

Part VIII- Geologic Information for Cedar Canyon 23 1H API 30-015-44178

The Cedar Canyon 23 1H will be injecting into the 1st Bone Spring Sandstone of the Bone Spring Formation. The well has a TVD of 7,897 ft. with a lateral length of approximately 4,503 ft. It will be injecting into a reservoir composed of tight siltstone. Core data indicates that the grain sizes range from coarse siltstone to very-fine-grained subarkose (Folk, 1980) sandstone. Samples show evidence of moderate compaction. Minor amounts of illite and smectite clays are found throughout the samples ranging from 5% to 15%. Cements are Fe-calcite, Fe-dolomite, with some quartz overgrowths. Minor amounts of pyrite (<1%) are present. The resulting reservoir rock has porosity of 8-18% with an average porosity of 11.7%. Permeability measured by injection fall-off tests conducted within the reservoir ranges from 0.02 millidarcies to 0.001 millidarcies.

The injection area for this well is bounded by two producing wells in the same reservoir interval that is 330 ft. thick. Low-permeability barriers act as seals above the reservoir. The upper barrier consists of carbonate mudstone, dolomudstone, and shales that are 1,000 ft. thick. Below the well, the top of the 2nd Bone Spring Limestone is at 8,200 ft TVD, with the lateral being 280 ft. above it. The 2nd Bone Spring Limestone is a very low permeability carbonate mudstone that is 480 ft. thick. Downward permeability is further limited by increasing lithostatic pressure with depth. Laterally the injection will be primarily contained by the reservoir volume that has been previously and partially depleted by the adjacent producing wells. 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.

The top of the Bone Spring Formation is at 6,806 ft. (log depth) with over 1,000 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 3,700 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 620 ft. TVD 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 260 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.

Locate freshwater wells within two miles:
An investigation of existing shallow water wells has not found any freshwater wells within a two mile radius of this injector.

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

Tony Troutman
Geological Advisor

2/2/2021
Date

Part VIII- Geologic Information for Cedar Canyon 23 2H API 30-015-41194

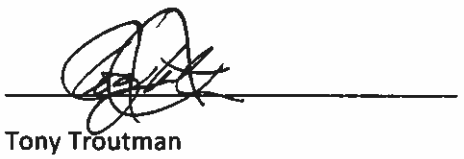
The Cedar Canyon 23 2H will be injecting into the 2nd Bone Spring Sandstone of the Bone Spring Formation. The well has a TVD of 8,914 ft. with a lateral length of approximately 4,327 ft. It will be injecting into a reservoir composed of tight siltstone. Core data indicates that the grain sizes range from coarse siltstone to very-fine-grained subarkose (Folk, 1980) sandstone. Samples show evidence of moderate compaction. Minor amounts of illite and smectite clays are found throughout the samples ranging from 5% to 15%. Cements are Fe-calcite, Fe-dolomite, pore-bridging illite and some quartz overgrowths. Minor amounts of pyrite (<1%) are present. The resulting reservoir rock has porosity of 8-18% with an average porosity of 9.7%. Permeability measured by injection fall-off tests conducted within the reservoir ranges from 10 millidarcies to 0.003 millidarcies.

The injection area for this well is bounded by producing wells in the same reservoir interval that is 395 ft. thick. Low-permeability barriers act as seals above and below the reservoir. These barriers consist of carbonate mudstone and dolomudstone that are 450 ft. thick above and 745 ft. thick below. Laterally the injection will be primarily contained by the reservoir volume that has been previously and partially depleted by the adjacent producing wells. 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.

The top of the Bone Spring Formation is at 6,733 ft. (log depth) with over 2,000 ft. of carbonate mudstones and shales acting as 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 3,700 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 510 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 440 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. Water wells drilled in the area typically have not reached this depth. 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.

Locate freshwater wells within two miles:
An investigation of existing shallow water wells has not found any freshwater wells within a two mile radius of this injector.

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



Tony Troutman
Geological Advisor

2/2/2021
Date

Part VIII- Geologic Information for Cedar Canyon 23 Federal Com 3H API 30-015-43290

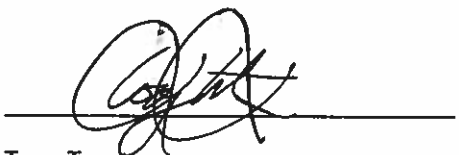
The Cedar Canyon 23 Federal Com 3H will be injecting into the 2nd Bone Spring Sandstone of the Bone Spring Formation. The well has a TVD of 8,986 ft. with a lateral length of approximately 7,266 ft. It will be injecting into a reservoir composed of tight siltstone. Core data indicates that the grain sizes range from coarse siltstone to very-fine-grained subarkose (Folk, 1980) sandstone. Samples show evidence of moderate compaction. Minor amounts of illite and smectite clays are found throughout the samples ranging from 5% to 15%. Cements are Fe-calcite, Fe-dolomite, pore-bridging illite and some quartz overgrowths. Minor amounts of pyrite (<1%) are present. The resulting reservoir rock has porosity of 8-18% with an average porosity of 9.7%. Permeability measured by injection fall-off tests conducted within the reservoir ranges from 10 millidarcies to 0.003 millidarcies.

The injection area for this well is bounded by producing wells in the same reservoir interval that is 395 ft. thick. Low-permeability barriers act as seals above and below the reservoir. These barriers consist of carbonate mudstone and dolomudstone that are 450 ft. thick above and 745 ft. thick below. Laterally the injection will be primarily contained by the reservoir volume that has been previously and partially depleted by the adjacent producing wells. 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.

The top of the Bone Spring Formation is at 6,733 ft. (log depth) with over 2,000 ft. of carbonate mudstones and shales acting as 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 3,700 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 510 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 440 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. Water wells drilled in the area typically have not reached this depth. 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.

Locate freshwater wells within two miles:
An investigation of existing shallow water wells has not found any freshwater wells within a two mile radius of this injector.

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



Tony Troutman
Geological Advisor

2/2/2021
Date

Part VIII- Geologic Information for Cedar Canyon 23 Fed 4H API 30-015-43281

The Cedar Canyon 23 Fed 4H will be injecting into the 2nd Bone Spring Sandstone of the Bone Spring Formation. The well has a TVD of 8,982 ft. with a lateral length of approximately 7,553 ft. It will be injecting into a reservoir composed of tight siltstone. Core data indicates that the grain sizes range from coarse siltstone to very-fine-grained subarkose (Folk, 1980) sandstone. Samples show evidence of moderate compaction. Minor amounts of illite and smectite clays are found throughout the samples ranging from 5% to 15%. Cements are Fe-calcite, Fe-dolomite, with some quartz overgrowths. Minor amounts of pyrite (<1%) are present. The resulting reservoir rock has porosity of 8-18% with an average porosity of 11.7%. Permeability measured by injection fall-off tests conducted within the reservoir ranges from 0.02 millidarcies to 0.001 millidarcies.

The injection area for this well is bounded by two producing wells in the same reservoir interval that is 330 ft. thick. Low-permeability barriers act as seals above and below the reservoir. These barriers consist of carbonate mudstone and dolomudstone that are 520 ft. thick above and 715 ft. thick below. Laterally the injection will be primarily contained by the reservoir volume that has been previously and partially depleted by the adjacent producing wells. 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.

The top of the Bone Spring Formation is at 6,733 ft. (log depth) with over 2,000 ft. of carbonate mudstones and shales acting as 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 3,700 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 510 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 440 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. Water wells drilled in the area typically have not reached this depth. 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.

Locate freshwater wells within two miles:
An investigation of existing shallow water wells has not found any freshwater wells within a two mile radius of this injector.

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

Tony Troutman
Geological Advisor

2/2/2021
Date

Part VIII- Geologic Information for Cedar Canyon 23 Federal 5H API 30-015-43282

The Cedar Canyon 23 5H will be injecting into the 2nd Bone Spring Sandstone of the Bone Spring Formation. The well has a TVD of 9,010 ft. with a lateral length of approximately 7,207 ft. It will be injecting into a reservoir composed of tight siltstone. Core data indicates that the grain sizes range from coarse siltstone to very-fine-grained subarkose (Folk, 1980) sandstone. Samples show evidence of moderate compaction. Minor amounts of illite and smectite clays are found throughout the samples ranging from 5% to 15%. Cements are Fe-calcite, Fe-dolomite, pore-bridging illite and some quartz overgrowths. Minor amounts of pyrite (<1%) are present. The resulting reservoir rock has porosity of 8-18% with an average porosity of 9.7%. Permeability measured by injection fall-off tests conducted within the reservoir ranges from 10 millidarcies to 0.003 millidarcies.

The injection area for this well is bounded by producing wells in the same reservoir interval that is 395 ft. thick. Low-permeability barriers act as seals above and below the reservoir. These barriers consist of carbonate mudstone and dolomudstone that are 450 ft. thick above and 745 ft. thick below. Laterally the injection will be primarily contained by the reservoir volume that has been previously and partially depleted by the adjacent producing wells. 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.

The top of the Bone Spring Formation is at 6,733 ft. (log depth) with over 2,000 ft. of carbonate mudstones and shales acting as 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 3,700 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 510 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 440 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. Water wells drilled in the area typically have not reached this depth. 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.

Locate freshwater wells within two miles:
An investigation of existing shallow water wells has not found any freshwater wells within a two mile radius of this injector.

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

Tony Troutman
Geological Advisor

2/2/2021
Date

Part VIII- Geologic Information for Cedar Canyon 23 Federal Com 6H API 30-015- 44095

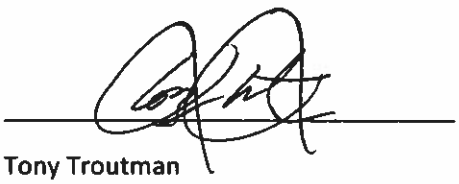
The Cedar Canyon 23 Federal Com 6H will be injecting into the 2nd Bone Spring Sandstone of the Bone Spring Formation. The well has a TVD of 8,974 ft. with a lateral length of approximately 7,275 ft. It will be injecting into a reservoir composed of tight siltstone. Core data indicates that the grain sizes range from coarse siltstone to very-fine-grained subarkose (Folk, 1980) sandstone. Samples show evidence of moderate compaction. Minor amounts of illite and smectite clays are found throughout the samples ranging from 5% to 15%. Cements are Fe-calcite, Fe-dolomite, pore-bridging illite and some quartz overgrowths. Minor amounts of pyrite (<1%) are present. The resulting reservoir rock has porosity of 8-18% with an average porosity of 9.7%. Permeability measured by injection fall-off tests conducted within the reservoir ranges from 10 millidarcies to 0.003 millidarcies.

The injection area for this well is bounded by producing wells in the same reservoir interval that is 395 ft. thick. Low-permeability barriers act as seals above and below the reservoir. These barriers consist of carbonate mudstone and dolomudstone that are 450 ft. thick above and 745 ft. thick below. Laterally the injection will be primarily contained by the reservoir volume that has been previously and partially depleted by the adjacent producing wells. 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.

The top of the Bone Spring Formation is at 6,733 ft. (log depth) with over 2,000 ft. of carbonate mudstones and shales acting as 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 3,700 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 510 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 440 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. Water wells drilled in the area typically have not reached this depth. 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.

Locate freshwater wells within two miles:
An investigation of existing shallow water wells has not found any freshwater wells within a two mile radius of this injector.

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



Tony Troutman
Geological Advisor

2/2/2021
Date

Part VIII- Geologic Information for Cedar Canyon 23-24 Fed 31H API 30-015-44179

The Cedar Canyon 23-24 Federal 31H will be injecting into the 3rd Bone Spring Sandstone of the Bone Spring Formation. The well has a TVD of 10,159 ft. with a lateral length of approximately 7,242 ft. It will be injecting into a reservoir composed of tight siltstone. Core data indicates that the grain sizes range from coarse siltstone to very-fine-grained subarkose (Folk, 1980) sandstone. Samples show evidence of moderate compaction. Minor amounts of illite and smectite clays are found throughout the samples ranging from 5% to 15%. Cements are Fe-calcite, Fe-dolomite, with some quartz overgrowths. Minor amounts of pyrite (<1%) are present. The resulting reservoir rock has porosity of 8-18% with an average porosity of 11.7%. Permeability measured by injection fall-off tests conducted within the reservoir ranges from 0.02 millidarcies to 0.001 millidarcies.

The injection area for this well is bounded by producing wells in the same reservoir interval that is 365 ft. thick. Low-permeability barriers act as seals above the reservoir. The upper barrier consists of carbonate mudstone, dolomudstone, and shales that are 715 ft. thick. Below the well, the top of the Wolfcamp is at 10,170 ft TVD, with the lateral being 50 ft. above it. The top of Wolfcamp is a thin bentonitic shale that presents a minor permeability barrier. Downward permeability is further limited by increasing lithostatic pressure with depth. Laterally the injection will be primarily contained by the reservoir volume that has been previously and partially depleted by the adjacent producing wells. 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.

The top of the Bone Spring Formation is at 6,801 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 3,700 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 211 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.

Locate freshwater wells within two miles:
An investigation of existing shallow water wells has not found any freshwater wells within a two mile radius of this injector.

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

Tony Troutman
Geological Advisor

2/2/2021
Date

Part VIII- Geologic Information for Cedar Canyon 23-24 Fed 32H API 30-015-44180

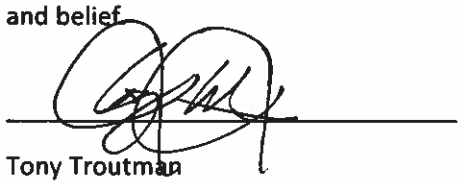
The Cedar Canyon 23-24 Federal 32H will be injecting into the 3rd Bone Spring Sandstone of the Bone Spring Formation. The well has a TVD of 10,120ft. with a lateral length of approximately 7,545 ft. It will be injecting into a reservoir composed of tight siltstone. Core data indicates that the grain sizes range from coarse siltstone to very-fine-grained subarkose (Folk, 1980) sandstone. Samples show evidence of moderate compaction. Minor amounts of illite and smectite clays are found throughout the samples ranging from 5% to 15%. Cements are Fe-calcite, Fe-dolomite, with some quartz overgrowths. Minor amounts of pyrite (<1%) are present. The resulting reservoir rock has porosity of 8-18% with an average porosity of 11.7%. Permeability measured by injection fall-off tests conducted within the reservoir ranges from 0.02 millidarcies to 0.001 millidarcies.

The injection area for this well is bounded by two producing wells in the same reservoir interval that is 365 ft. thick. Low-permeability barriers act as seals above the reservoir. The upper barrier consists of carbonate mudstone, dolomudstone, and shales that are 715 ft. thick. Below the well, the top of the Wolfcamp is at 10,170 ft TVD, with the lateral being 50 ft. above it. The top of Wolfcamp is a thin bentonitic shale that presents a minor permeability barrier. Downward permeability is further limited by increasing lithostatic pressure with depth. Laterally the injection will be primarily contained by the reservoir volume that has been previously and partially depleted by the adjacent producing wells. 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.

The top of the Bone Spring Formation is at 6,801 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 3,700 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 211 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.

Locate freshwater wells within two miles:
An investigation of existing shallow water wells has not found any freshwater wells within a two mile radius of this injector.

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



Tony Troutman
Geological Advisor

2/2/2021
Date

Part VIII- Geologic Information for Cedar Canyon 23-24 Fed 34H API 30-015-44178

The Cedar Canyon 23-24 Federal 34H will be injecting into the 3rd Bone Spring Sandstone of the Bone Spring Formation. The well has a TVD of 9,970 ft. with a lateral length of approximately 7,242 ft. It will be injecting into a reservoir composed of tight siltstone. Core data indicates that the grain sizes range from coarse siltstone to very-fine-grained subarkose (Folk, 1980) sandstone. Samples show evidence of moderate compaction. Minor amounts of illite and smectite clays are found throughout the samples ranging from 5% to 15%. Cements are Fe-calcite, Fe-dolomite, with some quartz overgrowths. Minor amounts of pyrite (<1%) are present. The resulting reservoir rock has porosity of 8-18% with an average porosity of 11.7%. Permeability measured by injection fall-off tests conducted within the reservoir ranges from 0.02 millidarcies to 0.001 millidarcies.

The injection area for this well is bounded by producing wells in the same reservoir interval that is 365 ft. thick. Low-permeability barriers act as seals above the reservoir. The upper barrier consists of carbonate mudstone, dolomudstone, and shales that are 715 ft. thick. Below the well, the top of the Wolfcamp is at 10,170 ft TVD, with the lateral being 50 ft. above it. The top of Wolfcamp is a thin bentonitic shale that presents a minor permeability barrier. Downward permeability is further limited by increasing lithostatic pressure with depth. Laterally the injection will be primarily contained by the reservoir volume that has been previously and partially depleted by the adjacent producing wells. 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.

The top of the Bone Spring Formation is at 6,801 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 3,700 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 211 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.

Locate freshwater wells within two miles:
An investigation of existing shallow water wells has not found any freshwater wells within a two mile radius of this injector.

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

Tony Troutman
Geological Advisor

2/2/2021
Date

Part VIII- Geologic Information for Cedar Canyon 23 Federal Com 33H API 30-015-44074

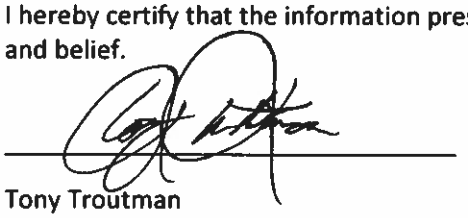
The Cedar Canyon 23-24 Federal Com 33H will be injecting into the Wolfcamp XY Sandstone of the Bone Spring Formation. The well has a TVD of 10,330 ft. with a lateral length of approximately 7,362 ft. It will be injecting into a reservoir composed of tight siltstone and shale. Core data indicates that the grain sizes range from coarse siltstone to very-fine-grained subarkose (Folk, 1980) sandstone. Samples show evidence of moderate compaction. Illite, smectite, kaolinite, and chlorite clays are found throughout the samples ranging from 5% to 35%. Cements are Fe-calcite, Fe-dolomite, with some quartz overgrowths. Minor amounts of pyrite (<1%) are present. The resulting reservoir rock has porosity of 3-13% with an average porosity of 7%. Permeability measured by injection fall-off tests conducted within the reservoir ranges from 0.1 millidarcies to 1 nanodarcies.

The injection area for this well is bounded by producing wells in the same reservoir interval that is 420 ft. thick. The top of Wolfcamp is a thin bentonitic shale that presents a minor permeability barrier. Above the 3rd Bone Spring Sand, the 3rd Bone Spring Limestone creates the upper barrier, which consists of carbonate mudstone, dolomudstone, and shales that are 715 ft. thick. Below the well, the top of the Wolfcamp B Shale is at 10,650 ft. TVD, with the lateral being 300 ft. above it. Downward permeability is further limited by increasing lithostatic pressure with depth. Laterally the injection will be primarily contained by the reservoir volume that has been previously and partially depleted by the adjacent producing wells. 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.

The top of the Bone Spring Formation is at 6,801 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 3,700 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 211 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.

Locate freshwater wells within two miles:
An investigation of existing shallow water wells has not found any freshwater wells within a two mile radius of this injector.

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



Tony Troutman
Geological Advisor

2/2/2021
Date

Notice List

Party	Address	Street	City	State	Zip
Chesapeake Exploration LLC	6100 N Western, Oklahoma City, OK 73118	6100 N Western	Oklahoma City	OK	73118
Chevron USA Inc	1400 Smith Street, Houston, TX 77002	1400 Smith Street	Houston	TX	77002
CTV OG NM LLC	201 Main Street Suite 2700, Fort Worth, TX 76102	201 Main Street Suite 2700	Fort Worth	TX	76102
Devon Energy Production Co LP	333 West Sheridan Avenue, Oklahoma City, OK 73102	333 West Sheridan Avenue	Oklahoma City	OK	73102
Devon Energy Production Inc	333 West Sheridan Avenue, Oklahoma City, OK 73102	333 West Sheridan Avenue	Oklahoma City	OK	73102
Dominion OK TX Exploration & Production Inc	14000 Quail Springs Pkwy #600, Oklahoma City, OK 73134	14000 Quail Springs Pkwy #600	Oklahoma City	OK	73134
Edward K Gaylord II	PO Box 31560, Edmond, OK 73003	PO Box 31560	Edmond	OK	73003
Eleven Sands Exploration Inc	PO Box 31560, Edmond, OK 73003	PO Box 31560	Edmond	OK	73003
Fortson Oil Co	301 Commerce #3301, Fort Worth, TX 76102	301 Commerce #3301	Fort Worth	TX	76102
KONA Ltd	1302 West Avenue, Austin, TX 78701	1302 West Avenue	Austin	TX	78701
Legacy Reserves Operating LP	PO Box 207418, Dallas, TX 75320-7418	PO Box 207418	Dallas	TX	75320
Mobil Producing Texas & New Mexico Inc	22777 Springwoods Village Pkwy, Spring, TX 77389-1425	22777 Springwoods Village Pkwy	Spring	TX	77389
New Mexico Oil Conservation Division	811 S. First St., Artesia, NM 88210	811 S. First St.	Artesia	NM	88210
New Mexico Oil Conservation Division	1220 South St. Francis Dr., Santa Fe, NM 87505	1220 South St. Francis Dr.	Santa Fe	NM	87505
Phillips 66 Nat Gas	4001 Penbrook #324, Odessa, TX 79762	4001 Penbrook #324	Odessa	TX	79762
PXP Producing Co LLC	717 Texas Street Suite 2100, Houston, TX 77002	717 Texas Street Suite 2100	Houston	TX	77002
Riverhill Energy Co	PO Box 2726, Midland, TX 79702	PO Box 2726	Midland	TX	79702
Shackelford Oil Co	PO Box 10665, Midland, TX 79702	PO Box 10665	Midland	TX	79702
Siete Oil & Gas Corp	PO Box 2523, Roswell, TX 88202	PO Box 2523	Roswell	TX	88202
SM Energy Co	1775 Sherman Street, Suite 1200, Denver, CO 80203	1775 Sherman Street Suite 1200	Denver	CO	80203
State of New Mexico	PO Box 1148, Santa Fe, NM 87504	PO Box 1148	Santa Fe	NM	87504
United States Department of the Interior, Bureau of Land Management	620 E. Greene Street, Carlsbad, NM 88220	620 E. Greene Street	Carlsbad	NM	88220
XTO Delaware Basin LLC	22777 Springwoods Village Pkwy, Spring, TX 77389-1425	22777 Springwoods Village Pkwy	Spring	TX	77389
XTO Holdings LLC	PO BOX 840780, Dallas, TX, 75284	PO BOX 840780	Dallas	TX	75284
XTO Permian Operating LLC	6401 Holiday Hill Road Building 5, Midland, TX, 79707	6401 Holiday Hill Road Building 5	Midland	TX	79707
McNic O&G Properties	1360 Post Oak Blvd, Houston, TX, 77056	1360 Post Oak Blvd	Houston	TX	77056
Penwell Energy Inc.	600 N. Marienfeld #1100, Midland, TX, 79701	600 N. Marienfeld #1100	Midland	TX	79701