

**BEFORE THE OIL CONSERVATION DIVISION
EXAMINER HEARING AUGUST 05, 2021**

CASE NO. 22088

AVOGATO 20 31 STATE COM 11H, 13H, 14H WELLS

LEA COUNTY, NEW MEXICO



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

**APPLICATION OF OXY USA INC. FOR A
CLOSED LOOP GAS CAPTURE INJECTION
PILOT PROJECT, LEA COUNTY, NEW MEXICO.**

CASE NO. 22088

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

**APPLICATION OF OXY USA INC. FOR A
CLOSED LOOP GAS CAPTURE INJECTION
PILOT PROJECT, LEA COUNTY, NEW
MEXICO.**

CASE NO. 22088

APPLICATION

OXY USA Inc. (“OXY” or “Applicant”) (OGRID No. 16696) through its undersigned attorneys, hereby files this application with the Oil Conservation Division for an order authorizing OXY to engage in a closed loop gas capture injection pilot project in the Bone Spring formation (“pilot project”). In support of this application, OXY states:

PROJECT OVERVIEW

1. OXY proposes to create a 1,280-acre, more or less, project area for this pilot project consisting of all of Sections 30 and 31, Township 22 South, Range 33 East, NMPM, Lea County, New Mexico. See **Exhibit A** at 5. The proposed project area is part of a larger area referred to as the Tanks area.

2. Within the proposed project area, OXY seeks authority to utilize the following producing wells to occasionally inject produced gas into the Bone Spring formation [Red Tank; Bone Spring, East Pool (Pool Code 51687)]:

- The **Avogato 30_31 State Com #11H well** (API No. 30-025-45956), with a surface location 160 feet FNL and 885 feet FWL (Lot 1) in Section 30, and a bottom hole location 50 feet FSL and 600 feet FWL (Lot 4) in Section 31.

**BEFORE THE OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Exhibit No. A
Submitted by: OXY USA INC.
Hearing Date: August 05, 2021
Case No. 22088**

- The **Avogato 30_31 State Com #13H well** (API No. 30-025-45958), with a surface location 160 feet FNL and 2375 feet FEL (Unit B) in Section 30, and a bottom hole location 17 feet FSL and 2905 feet FEL (Unit N) in Section 31.
 - The **Avogato 30_31 State Com #14H well** (API No. 30-025-45959), with a surface location 160 feet FNL and 2340 feet FEL (Unit B) in Section 30, and a bottom hole location 23 feet FSL and 1957 feet FEL (Unit O) in Section 31.
3. Injection along the horizontal portion of the wellbores will be at the following approximate total vertical depths:
- The **Avogato 30_31 State Com #11H well**: between 9,332 feet and 9,432 feet.
 - The **Avogato 30_31 State Com #13H well**: between 9,396 feet and 9,397 feet.
 - The **Avogato 30_31 State Com #14H well**: between 9,488 feet and 9,540 feet.
4. A map depicting the pipeline that ties the wells proposed for the pilot project into the gathering system and the affected compressor station is included in the attached **Exhibit A** at pages 5-6.

WELL DATA

5. Information on the well data, including well diagrams and well construction, casing, tubing, packers, cement, perforations, and other details for each proposed injection well are included in the attached **Exhibit A** at pages 10-12, 14-15, 20-21 and 26-27.
6. The top of the Bone Spring formation in this area is at approximately 8,655 feet total vertical depth and extends down to the top of the Wolfcamp formation at approximately 11,830 feet total vertical depth. See **Exhibit A** at 80.

7. The current average surface pressures under normal operations for the proposed injection wells range from approximately 540 psi to 780 psi. *See Exhibit A* at 39. The maximum achievable surface pressure (MASP) for the wells in the pilot project will be 1,200 psi. *Id.*

8. OXY plans to monitor injection and operational parameters for the pilot project using an automated supervisory control and data acquisition (SCADA) system with pre-set alarms and automatic shut-in safety valves that will prevent injection pressures from exceeding the MASP. *See Exhibit A* at 49-51.

9. The proposed maximum achievable surface pressure will not exert pressure at the top perforation in the wellbore of any injection well with a full fluid column of reservoir brine water in excess of 90% of the burst pressure for the production casing or production liner. *See Exhibit A* at 39. In addition, the proposed maximum achievable surface pressure will not exceed 0.14 psi per foot as measured at the top of the uppermost perforation in any injection well and will not exert pressure at the topmost perforation in excess of 90% of the formation parting pressure. *See Exhibit A* at 39.

10. Cement bond logs¹ for each of the injection wells demonstrate the placement of cement in the wells proposed for this pilot project and that there is a good and sufficient cement bond with the production casing and the tie-in of the production casing with the next prior casing in each well. *See Exhibit A* at 16-19, 22-25, 28-32, respectively.

11. The wells proposed for injection in the pilot project have previously demonstrated mechanical integrity. *See Exhibit A* at 41. OXY will undertake new tests to demonstrate mechanical integrity for each of the wells proposed for this pilot project as a condition of approval prior to commencing injection operations.

¹ Electronic version of the cement bond logs will be submitted to the Division by email.

GEOLOGY AND RESERVOIR

12. Data and a geologic analysis confirming that the Bone Spring formation is suitable for the proposed pilot project is included in *Exhibit A* at pages 80-86. A general characterization of the geology of the Bone Spring formation and its suitability for the proposed injection, including identification of confining layers and their ability to prevent vertical movement of the injected gas is included in the analysis. *Id.*

13. Zones that are productive of oil and gas are located in the overlying Avalon Sand interval of the Bone Spring formation and the Brushy Canyon formation, and in the deeper First Bone Spring Sand interval of the Bone Spring Formation. *See Exhibit A* at 80.

14. Reservoir modeling indicates anticipated horizontal movement of injected gas will be approximately 100 feet or less from each injection wellbore within the Bone Spring formation. *See Exhibit A* at 93.

15. The proposed average injection rate for each well is 1.8 MMSCFD with a maximum injection rate of 2.0 MMSCFD during injection. *See Exhibit A* at 39.

16. OXY has prepared calculations estimating the stimulated reservoir volume based on supporting empirical data and a reservoir model to evaluate potential effects on wells adjacent to the pilot project area. *See Exhibit A* at 88-98. OXY's analysis concludes that there will be no change in the oil recovery from each of its proposed injection wells or from any of the offsetting wells. *See id.* at 95, 98.

17. Similarly, OXY has prepared an analysis of the potential effects on the reservoir caused by the proposed injection, including consideration of commingling fluids. *Exhibit A* at 88-98. OXY's analysis concludes that there will be no adverse effect on the reservoir as a result of the injection. *Id.* at 98.

18. OXY has also prepared an analysis evaluating the expected gas storage capacity for the proposed injection well relative to the gas injection volumes for an injection scenario lasting twenty days. *See Exhibit A* at 96. The analysis confirms that whether the capacity is estimated based on the fracture volume gas equivalent or the total gas equivalent volumes produced from the proposed injection zone, the anticipated gas injection volumes will be well below the estimated volume capacity within the project area.

19. The source of gas for injection will be from OXY's Avogato wells producing in the Bone Spring and Wolfcamp formations that are identified in the list of wells in *Exhibit A* at page 43. Each of OXY's proposed injection wells are operated by OXY and OXY holds 100% of the working interest in the wells.

20. OXY has prepared an analysis of the composition of the source gas for injection and a corrosion prevention plan. *See Exhibit A* at 42-48.

21. OXY has examined the available geologic and engineering data and found no evidence of open faults or other hydrologic connections between the injection zone and any underground source of drinking water. *See Exhibit A* at 86. OXY has also examined the available geologic and engineering data and determined that the total recoverable volume of hydrocarbons from the reservoir will not be adversely affected by the pilot project. *See Exhibit A* at 98.

AREA OF REVIEW

22. OXY has prepared maps depicting the location of the proposed injection well, the location and lateral of every well within a two-mile radius, leases within two miles, and the half-mile area of review. *See Exhibit A* at 53, 55, 57.

23. A tabulation of data for wells that penetrate the proposed injection intervals or the confining layer within the area of review is included in *Exhibit A* at pages 59-61, along with well-

bore schematics for wells that are plugged and abandoned or temporarily abandoned. *See Exhibit A* at 66-78.

OPERATIONS AND SAFETY

24. OXY will monitor each injection well's instantaneous rates and daily injection volumes, along with pressure in the well tubing, casing, and bradenheads using an automated supervisory control and data acquisition (SCADA) system. *See Exhibit A* at 49-51. Each injection well will also include automated safety devices, including automatic shut-in valves among other operational safety measures. *Id.* at 40. OXY will also monitor and track various operational parameters at the pilot project's central tank battery and central gas lift compressors. *See Exhibit A* at 50-51.

25. A copy of this application will be provided by certified mail to the surface owner on which each injection well identified herein is located, and to each leasehold operator and other affected persons within any tract wholly or partially contained within one-half mile of the completed interval of the wellbore for each of the proposed injection wells. A copy of the affected parties subject to notice is included in *Exhibit A* at pages 106-109, along with a map and list identifying each tract and affected persons given notice. *See Exhibit A* at 100-102.

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

WHEREFORE, OXY USA Inc. requests that this Application be set for hearing before an Examiner of the Oil Conservation Division on August 5, 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.

New Mexico Closed Loop Gas Capture (CLGC) Oxy-Tanks

EXHIBIT A



Occidental

Overview

EXHIBIT A

General Project Description: Closed Loop Gas Capture Project Oxy- Tanks

About the Tanks Area

There are 2 gas systems in the Tanks area. One system is the Avogato 30-31 State lease and the other is the Taco Cat 27-31 Federal Com lease.

Summary of Requested Relief

1. Authority to operate a closed loop gas capture project (“CLGC”) consisting of four wells to prevent waste and reduce adverse impacts from temporary interruptions of gas pipeline capacity.
2. A 5-year duration of such authority, with renewal by administrative approval conditioned upon compliance with the stipulations contained in the initial Order and a successful MIT test.
3. An exception for the 100-foot packer setting depth requirement applied to vertical injection wells.

Overview

Oxy USA Inc. (Oxy) is proposing a Closed Loop Gas Capture (CLGC) project. On occasion, third-party gas purchasers reduce takeaway capacity and cause interruptions that result in flaring or shut in production. During these interruptions, Oxy will utilize CLGC wells to capture gas and reduce flaring.

During the previous 12 months, Oxy has experienced 39 interruptions where the third-party gas purchaser temporarily reduced takeaway capacity from this location, resulting in the flaring of at least 25 MMSCF of gas or the immediate shut-in of at least 800 BOE. Approval of this application will significantly reduce such flaring or shut-in production in the future.

Operations During Interruption	Operations During Interruption With CLGC System	Benefits
<ul style="list-style-type: none"> Flare gas Shut in production 	<ul style="list-style-type: none"> Store gas Continue production No additional surface disturbances 	<ul style="list-style-type: none"> Reduce greenhouse gas emissions Improve economic recovery of mineral resources including gas that might have been flared Utilize existing infrastructure

Proposed Operations

Oxy has an extensive high-pressure gas system in the Tanks area. It is used for gas lift operations, a type of artificial lift. Oxy plans to utilize the same system for gas storage operations. Very minimal equipment on surface will need to be installed prior to starting storage operations.

DCP is the third-party gas purchaser for the Tanks area. If an interruption occurs, Oxy will divert gas from the takeaway line back into the gas lift injection system. Gas will flow from the Central Gas Lift (CGL) Compressor Station through the flow meter, control valve, safety shutdown valve, wellhead and into the wellbore for storage. Gas will be injected down the casing/tubing annulus in these wells.

Simultaneously, the proposed CLGC well will be shut in by closing the electric choke upstream of the production flowline. After the interruption has ended, the electric choke will open and the CLGC well resumes production.

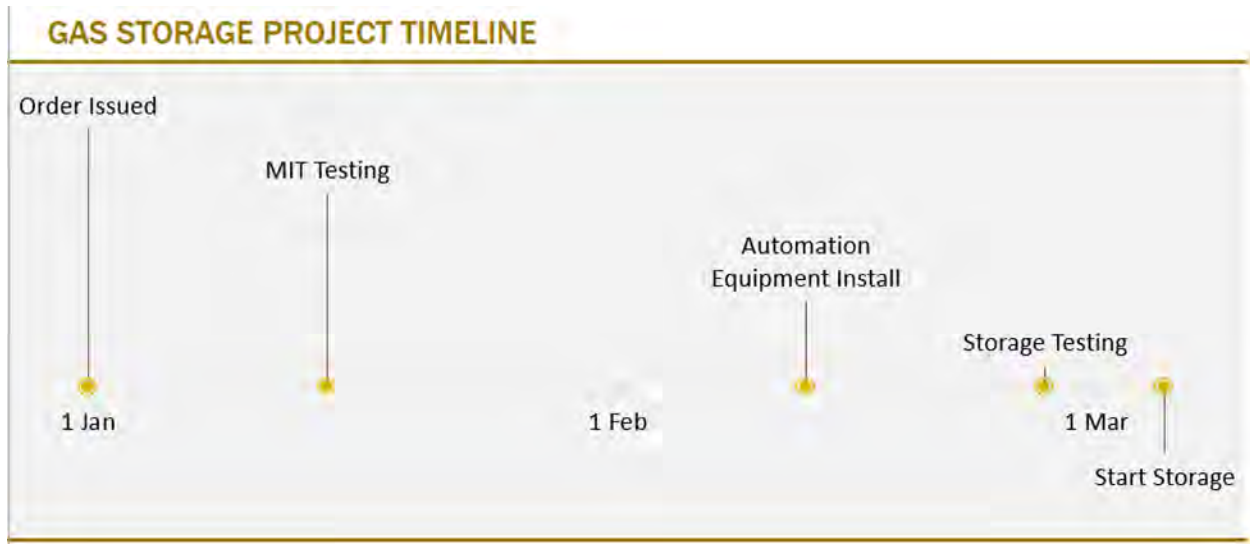
Wells

There are 4 wells proposed in this application.

#	API 14	Well Name	Injection Down the...
1	30025459560000	AVOGATO-11H	Casing
2	30025459580000	AVOGATO-13H	Casing
3	30025459590000	AVOGATO-14H	Casing
4	30025449330000	TACO2734-11H	Casing

Timeline

Since no new surface disturbances are required, this project can be implemented with minimal facility modifications. The timeline below assumes an order is issued on January 1 for illustration purposes.





Avogato Area

25

19

29

RED TANK 19 CGL

RED TANK 19 CTB

T22S
R32E

T22S
R33E

30

31






32

AVOGATO 30-31 STATE COM 11H

AVOGATO 30-31 STATE COM 13H

AVOGATO 30-31 STATE COM 14H

23

-  Flare
-  Gas Takeaway
-  Wellbore
-  LP Pipeline
-  Flowline
-  Gas Lift Line
-  Tank Battery

Project Area

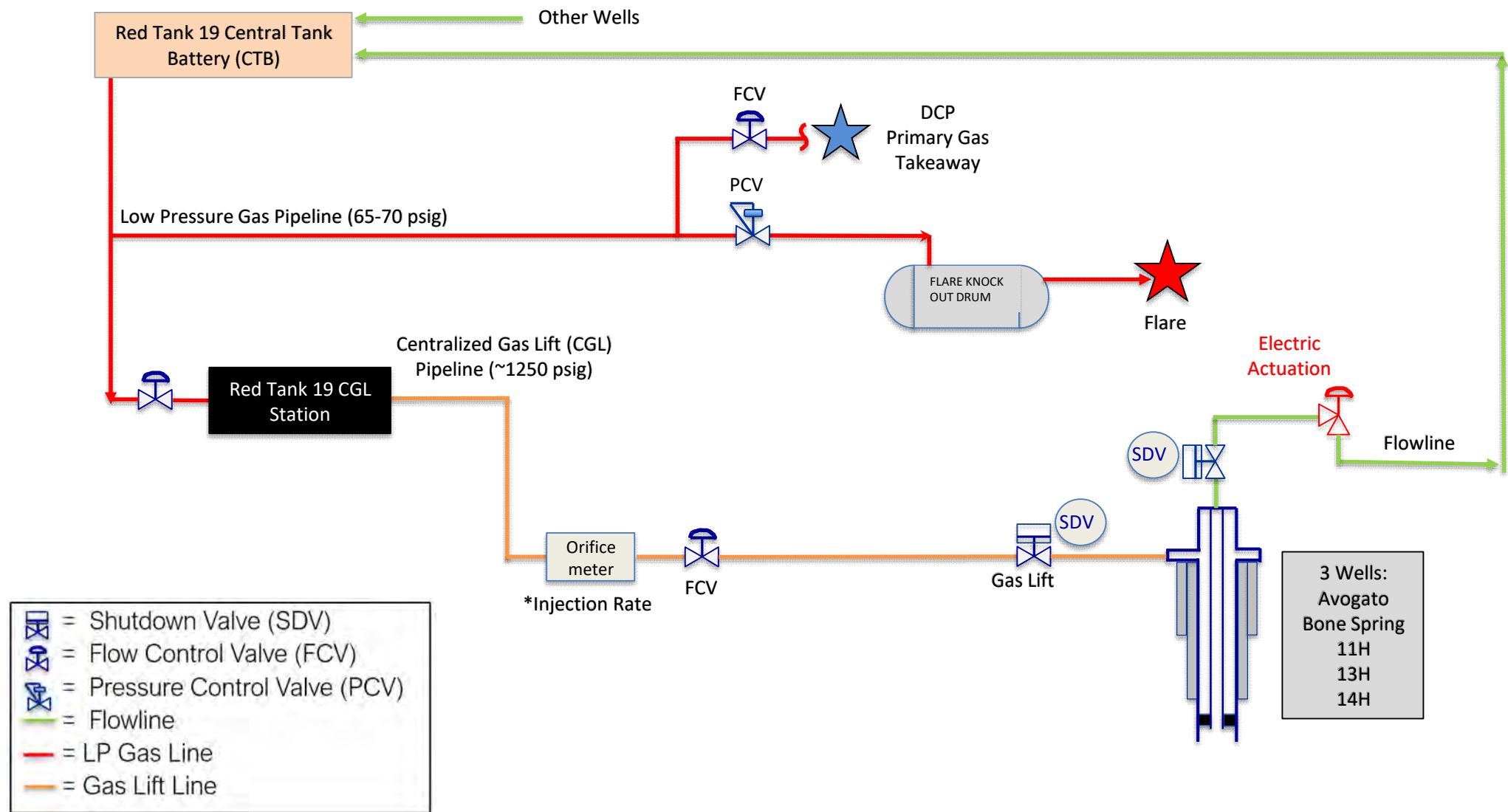
1 T23S
R32E

6 T23S
R33E

5

5

Avogato Gas Process Flow Diagram





21

22

23

Taco Cat Area

RED TANK 27/28
CTB/CGL

29

28

27

26

T22S
R32E








TACO CAT 27-34 FED COM 11H

32

33

34

35

-  Flare
-  Gas Takeaway
-  Wellbore
-  LP Pipeline
-  Gas Lift Line
-  Flowline
-  Tank Battery/CGL

Released to Imaging: 8/3/2021 3:52:29 PM

 Project Area

FTP

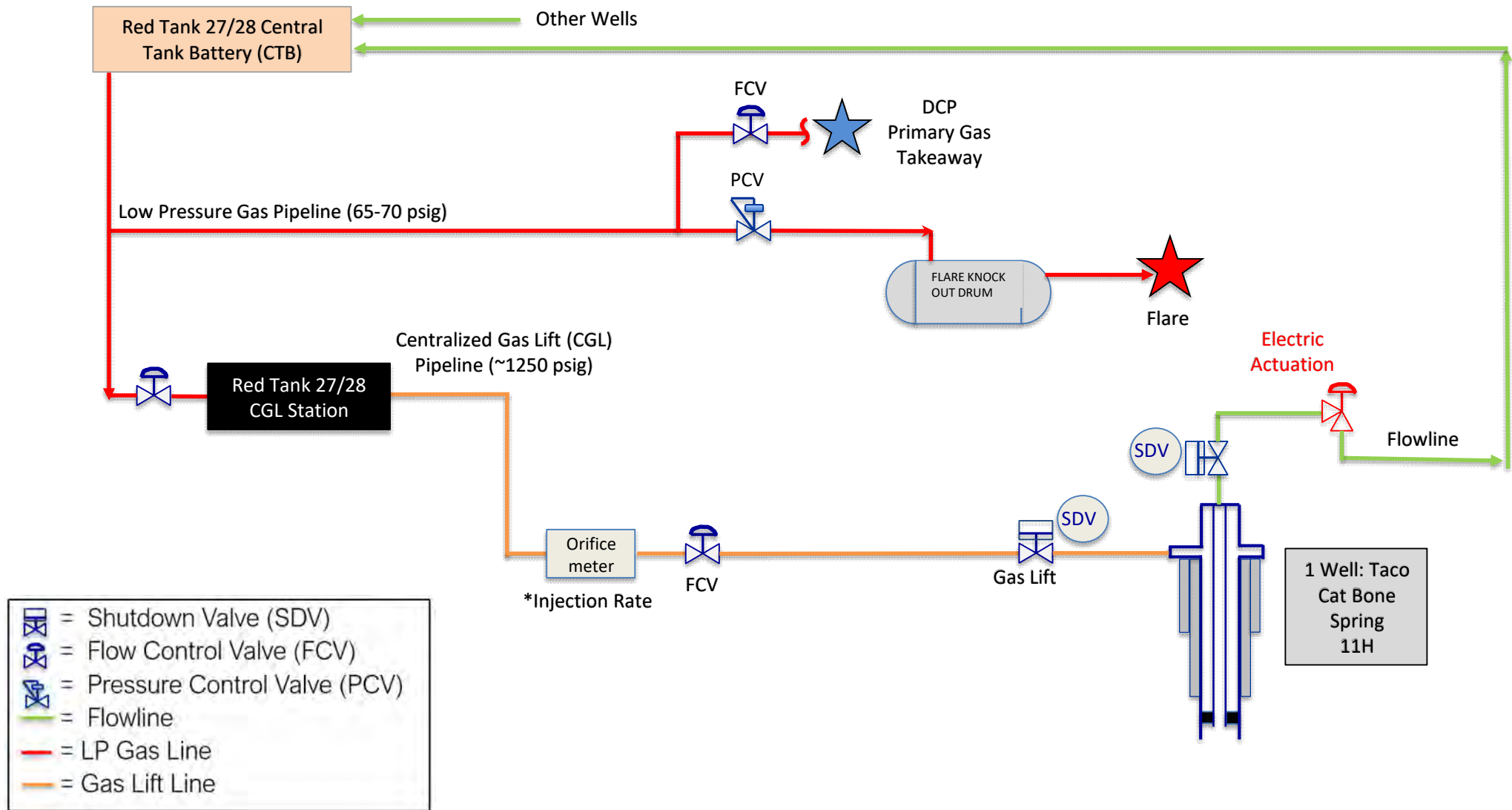
LTP

3

2

7

Taco Cat Gas Process Flow Diagram



Injection Wellbores

DISTRICT I
1625 N. FRENCH DR., HOBBS, NM 88240
Phone: (575) 535-5151 Fax: (575) 535-0720

DISTRICT II
811 S. FIRST ST., ARTESIA, NM 88210
Phone: (575) 748-1253 Fax: (575) 748-0720

DISTRICT III
1000 RIO BRAZOS RD., AZTEC, NM 87410
Phone: (505) 354-6179 Fax: (505) 354-6170

DISTRICT IV
1220 S. ST. FRANCIS DR., SANTA FE, NM 87506
Phone: (505) 478-3460 Fax: (505) 478-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505

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

AMENDED REPORT
As-Drilled

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-025-45956	Pool Code 51687	Pool Name RED TANK; BONE SPRING; EAST
Property Code 325625	Property Name AVOGATO 30_31 STATE COM	Well Number 11H
OGRID No. 16696	Operator Name OXY USA, INC.	Elevation 3706.1'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
1	30	22-S	33-E		160	NORTH	885	WEST	LEA

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
4	31	22-S	33-E		50	SOUTH	600	WEST	LEA

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
613.28			

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

*** ALL COORDINATES ARE NAD 83 VALUES**

SURFACE LOCATION
Y=498951.7 N
X=762521.6 E
LAT.=32.369653° N
LONG.=103.616928° W

1	Y=499107.0 N X=781835.4 E
2	Y=493826.6 N X=781873.4 E
3	Y=491187.3 N X=761892.5 E
4	Y=488547.8 N X=781711.3 E
5	Y=488582.6 N X=784238.7 E
6	Y=493844.2 N X=764203.2 E
7	Y=499120.5 N X=764165.7 E

BOTTOM HOLE LOCATION

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

Roni Matheu 11/25/19
Signature Date

RONI MATHEW
Printed Name

RONI_MATHEW@OXY.COM
E-mail Address

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

MARCH 12, 2019
Date of Survey

Signature & Seal of Professional Surveyor

Chad Harcrow 4/3/19
Certificate No. CHAD HARCROW 17777
W.O. # 19-470 DRAWN BY: AM

DISTRICT I
1625 N. VERMONT DR., HOBBS, NM 88240
Phone: (575) 523-0181 Fax: (575) 523-0720

DISTRICT II
811 S. FIRST ST., ARTESIA, NM 88210
Phone: (575) 746-1253 Fax: (575) 746-9720

DISTRICT III
1000 RIO BRAZOS RD., AZTEC, NM 87410
Phone: (505) 334-0178 Fax: (505) 334-6170

DISTRICT IV
1220 S. ST. FRANCIS DR., SANTA FE, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505

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FEB 14 2020
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Form C-102
Revised August 1, 2011
Submit one copy to appropriate District Office

AMENDED REPORT
As Drilled

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-025-45958	Pool Code 51683 51687	Pool Name RED TANK; BONE SPRING, <i>RAFF</i>
Property Code 325625	Property Name AVOGATO 30_31 STATE COM	Well Number 13H
OGRID No. 16696	Operator Name OXY USA, INC.	Elevation 3691.5'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
B	30	22-S	33-E		160	NORTH	2375	EAST	LEA

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	31	22-S	33-E		17	SOUTH	2905	EAST	LEA

Dedicated Acres 613.28	Joint or Infill	Consolidation Code	Order No.
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

KOP
97' FNL & 2832' FEL
LAT. = 32.36983
LONG. = 103.61223

EIP
657' FNL & 2976' FEL
LAT. = 33.56829
LONG. = 103.61270

BOTTOM HOLE LOCATION
17' FSL & 2905' FEL
LAT. = 32.34112
LONG. = 103.61269

SURFACE LOCATION
Y=498961.9 N
X=764429.7 E
LAT.=32.369646° N
LONG.=103.610748° W

*** ALL COORDINATES ARE
NAD 83 VALUES**

POINT LEGEND	
1	Y=499107.0 N X=761835.4 E
2	Y=493826.6 N X=761873.4 E
3	Y=491187.3 N X=761892.6 E
4	Y=488547.8 N X=761711.3 E
5	Y=488562.6 N X=764238.7 E
6	Y=493844.2 N X=764203.2 E
7	Y=499120.5 N X=764166.7 E

LIP
130' FSL & 2906' FEL
LAT. = 32.34115
LONG. = 103.61269

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

[Signature] 11/11/19
Signature Date

RONI MATHEW
Printed Name

RONI.MATHEW@OXY.COM
E-mail Address

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

MARCH 12, 2019
Date of Survey

[Signature]
Signature & Seal of Professional Surveyor

CHAD L. HARCROW
NEW MEXICO
17777
LICENSED PROFESSIONAL SURVEYOR

Chad Harcrow 4/5/19
Certificate No. CHAD HARCROW 17777
W.O. # 19-472 DRAWN BY: WN

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DISTRICT I
 1626 N. FRANCE DR., HOBBS, NM 88240
 Phone: (575) 393-6161 Fax: (575) 393-0720

DISTRICT II
 811 S. FIRST ST., ARTESIA, NM 88210
 Phone: (575) 748-1283 Fax: (575) 748-0720

DISTRICT III
 1000 RIO BRAZOS RD., AZTEC, NM 87410
 Phone: (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV
 1220 S. ST. FRANCIS DR., SANTA FE, NM 87505
 Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
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 Santa Fe, New Mexico 87505

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AMENDED REPORT
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WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-025-45959	Pool Code 51683 <i>51687</i>	Pool Name RED TANK; BONE SPRING; EAST
Property Code 325625	Property Name AVOGATO 30_31 STATE COM	Well Number 14H
OGRID No. 16696	Operator Name	Elevation 3691.6'

Surface Location

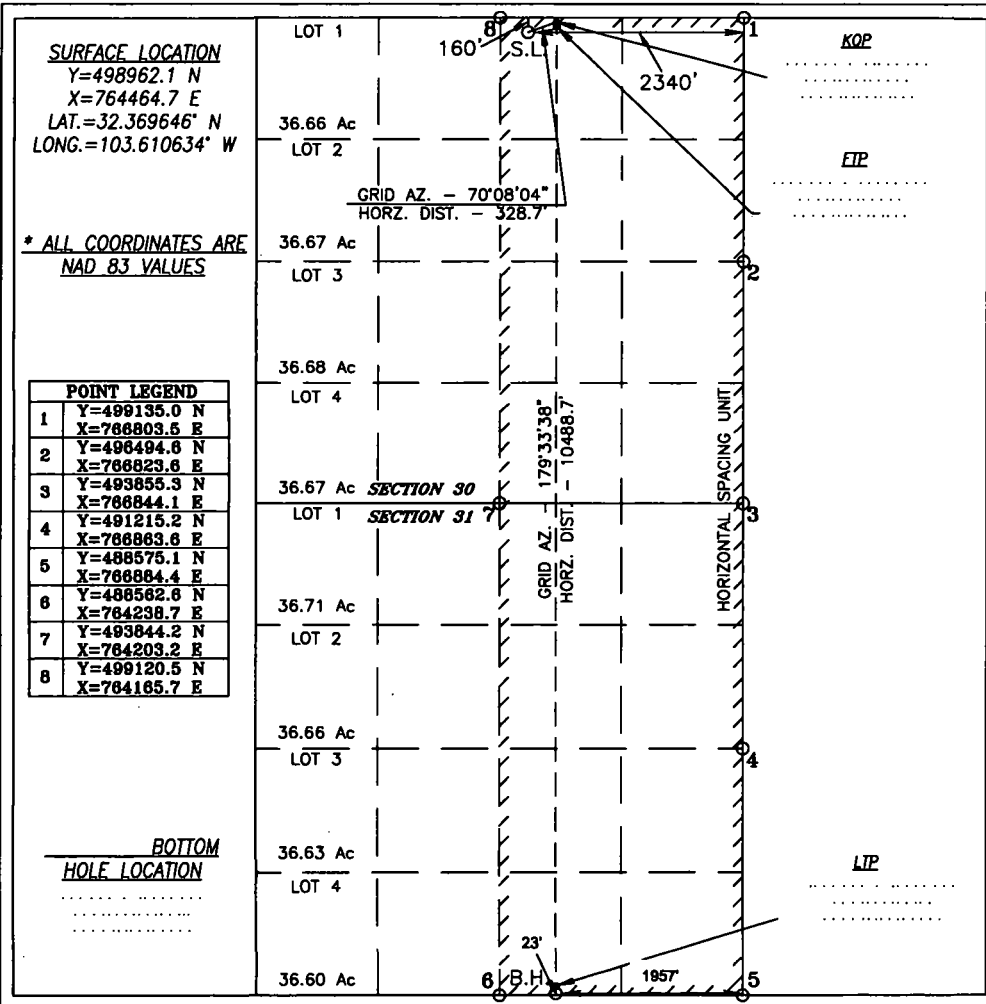
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
B	30	22-S	33-E		160	NORTH	2340	EAST	LEA

Bottom Hole Location if Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
0	31	22-S	33-E		..	SOUTH	EAST	LEA

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
640			

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



OPERATOR CERTIFICATION

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

Roni Mathew 11/12/19
 Signature Date

RONI MATHEW.
 Printed Name

RONI_MATHEW@OXY.COM
 E-mail Address

SURVEYOR CERTIFICATION

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

MARCH 12, 2019
 Date of Survey

Signature & Seal of Professional Surveyor

CHAD L. HARCROW
 NEW MEXICO
 LICENSED PROFESSIONAL SURVEYOR
 17777

Chad Harcrow 4/5/19
 Certificate No. CHAD HARCROW 17777
 W.O. # 19-473 DRAWN BY: WN

HOBBS OCD

Form C-102

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0770
District II
817 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Grande Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87503
Phone: (505) 476-3450 Fax: (505) 476-3462

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

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Submit one copy to appropriate District Office

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AMENDED REPORT
AS-DRILLED

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-025-44933	Pool Code 51683	Pool Name Red Tank Bone Springs
Property Code 321612	Property Name TACO CAT "27-34" FEDERAL COM	Well Number 11H
OGRID No. 16696	Operator Name OXY USA INC.	Elevation 3635.8'

Surface Location

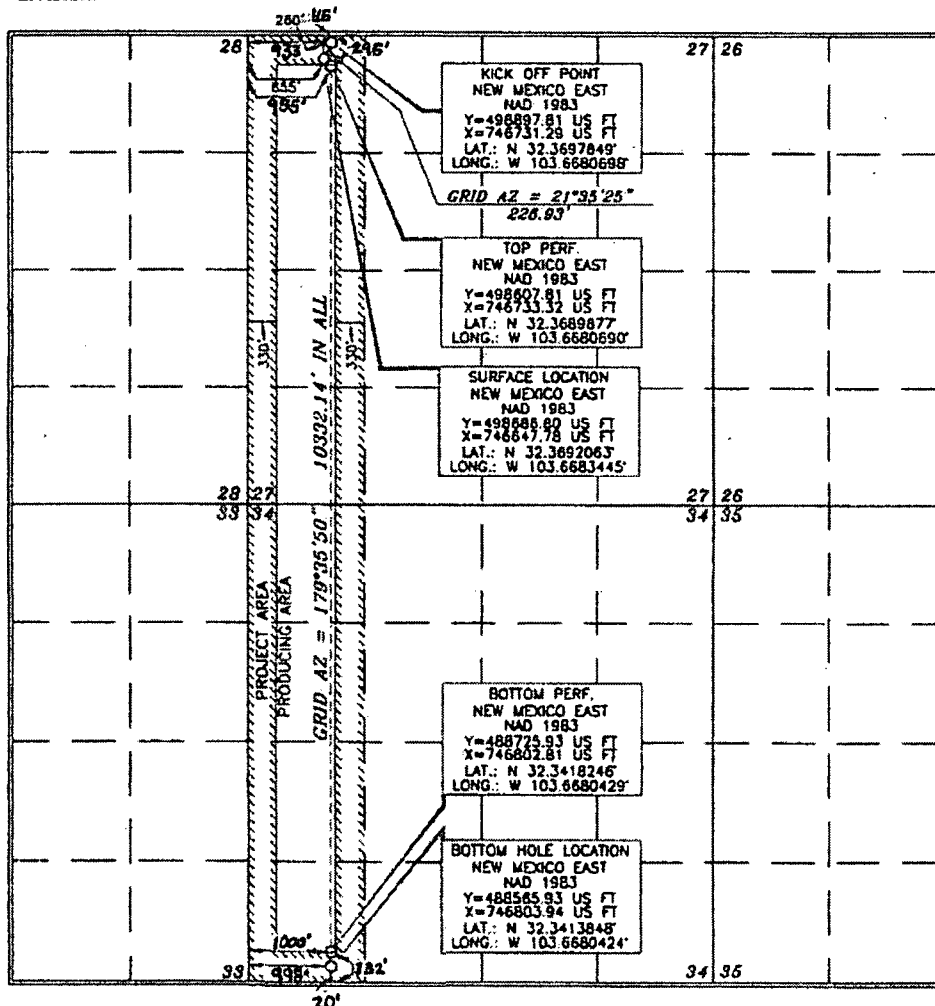
UL or lot no.	Section	Township	Range	Lot Ida	Feet from the	North/South line	Feet from the	East/West line	County
D	27	22 SOUTH	32 EAST, N.M.P.M.		260'	NORTH	855'	WEST	LEA

Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Ida	Feet from the	North/South line	Feet from the	East/West line	County
M	34	22 SOUTH	32 EAST, N.M.P.M.		20'	SOUTH	998'	WEST	LEA

Dedicated Acres 320	Joint or Infill Y	Consolidation Code	Order No. FTP: 295' FNL 955' FNL LTP: 132' FSL 1000' FNL
-------------------------------	-----------------------------	--------------------	--

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



OPERATOR CERTIFICATION

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

Leslie Reeves 8/28/19
Signature Date
LESLIE REEVES
Print Name
LESLIE-REEVES@OXY.COM
E-mail Address

SURVEYOR CERTIFICATION

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

TERRY J. ASH
15079
DECEMBER 26, 2012
Date of Survey
Signature and Seal
Professional Surveyor

Terry J. Ash 2/7/2018
Certificate Number 15079

WOF 171226HL - L (XA)

Side 1

OPERATOR: OXY USA INC

WELL NAME & NUMBER: AVOGATO 30-31 COM 11H

WELL LOCATION: <u>160' FNL 885' FWL</u>	<u>D</u>	<u>30</u>	<u>22S</u>	<u>33E</u>
FOOTAGE LOCATION	UNIT LETTER	SECTION	TOWNSHIP	RANGE

WELLBORE SCHEMATIC

WELL CONSTRUCTION DATA

Surface Casing

AVOGATO 30 31 STATE COM 11H

*Note- Diagram not to scale

13 3/8" CSA 1049'
CMT TO SURFACE (CIRC)

9 5/8" CSA 8850'
CMT TO SURFACE (CIRC)

5 1/2" CSA 19,614'
TOC 8322' (CBL)

Avalon Perfs @ 9558 - 19,537'

Hole Size: 17.5" Casing Size: 13.375"

Cemented with: 1340 sx. **or** _____ ft³

Top of Cement: 0' Method Determined: CIRC

Intermediate Casing

Hole Size: 12.25" Casing Size: 9.625"

Cemented with: 2149 sx. **or** _____ ft³

Top of Cement: 0' Method Determined: CIRC

Production Casing

Hole Size: 8.5" Casing Size: 5.5"

Cemented with: 2150 sx. **or** _____ ft³

Top of Cement: 8322' Method Determined: CBL

Total Depth: MD: 19645' / TVD: 9426'

Injection Interval

9558' MD/9322' TVD feet to 19537' MD/ 9432' TVD

(Perforated or Open Hole; indicate which)

Side 2

Tubing Size: 2.875" 6.5# L80 Lining Material: UNLINED

Type of Packer: 5.5" AS1-X PACKER

Packer Setting Depth: 9141' MD / 9092' TVD

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

Additional Data

1. Is this a new well drilled for injection? _____ Yes No
 If no, for what purpose was the well originally drilled? _____
PRODUCER- OIL
2. Name of the Injection Formation: AVALON
3. Name of Field or Pool (if applicable): Red Tank
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. _____
N/A
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
UNDERLYING: 2ND BONE SPRING

Avogato 11H CBL

Schlumberger
Company: OXY PERMIAN RESOURCES
Name: AVOGATO 11H/1 STATE COM 11H
Well ID: W-011111
Field: NEWARK
Client: OXY PERMIAN RESOURCES
Log Name: AVOGATO 11H/1 STATE COM 11H
Log Date: 03 NOV 2018

Log Header

Well Name	AVOGATO 11H/1 STATE COM 11H
Well ID	W-011111
Field	NEWARK
Client	OXY PERMIAN RESOURCES
Log Name	AVOGATO 11H/1 STATE COM 11H
Log Date	03 NOV 2018
Log Time	08:22:00
Log Type	11H
Log Status	Final
Log Version	1.0
Log Author	...
Log Editor	...
Log Reviewer	...
Log Approver	...

Disclaimer
THE USE OF AND RELIANCE UPON THE RECORDED DATA BY THE REFERENCED COMPANY AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING ANY RESTRICTIONS ON USE OF THE RECORDED DATA TO BE DETERMINED AND ISSUED BY SCHLUMBERGER AND REPRESENTATIONS REGARDING COMPANY'S USE AND RELIANCE UPON THE RECORDED DATA, AND BY CUSTOMER'S FILE, AND SOLE RESPONSIBILITY FOR ANY REFERENCE DRAWING OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED DATA.

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- 8.1 Composite Summary
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9. Full

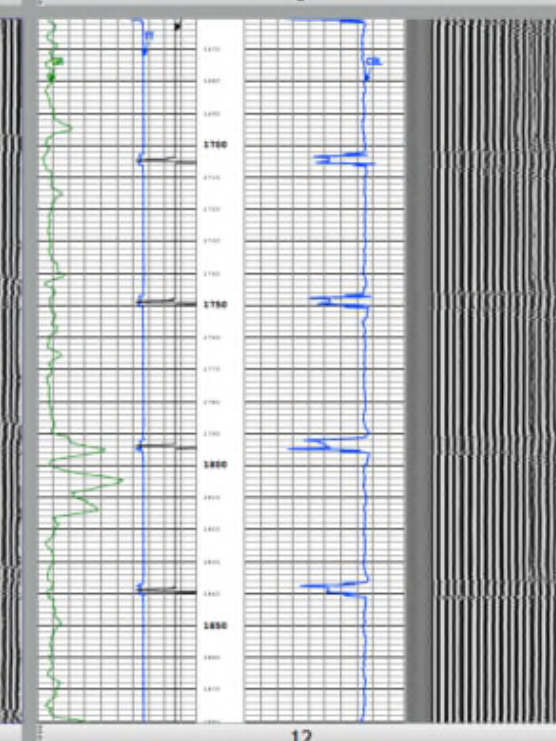
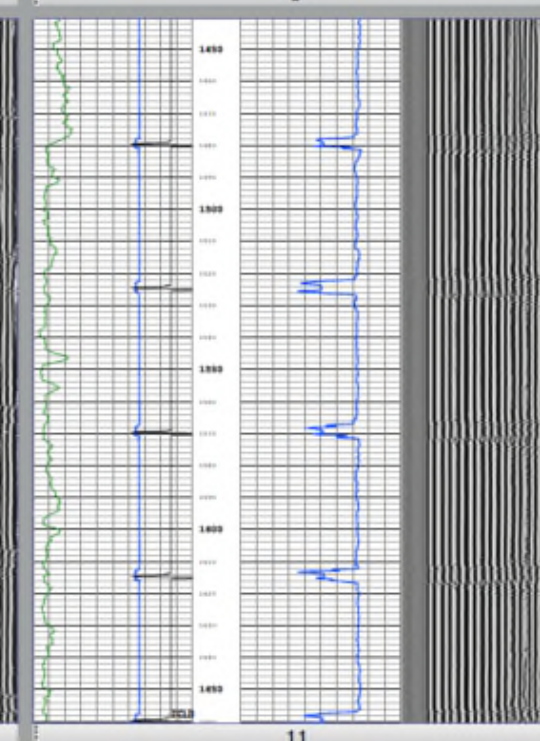
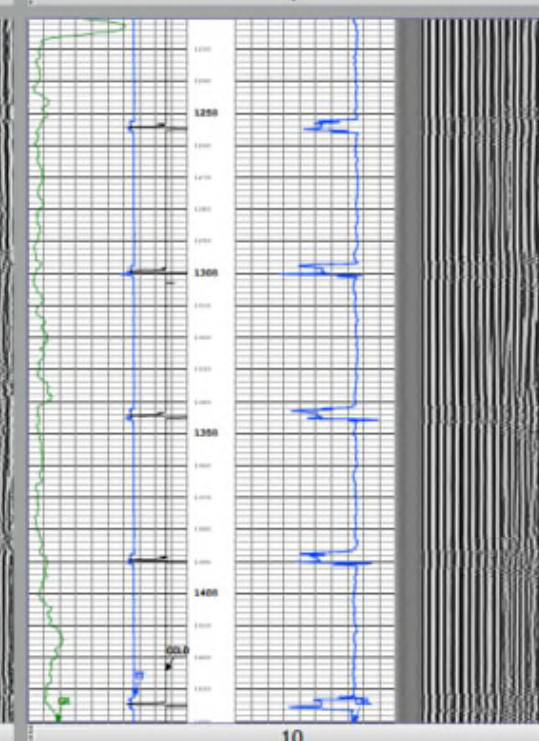
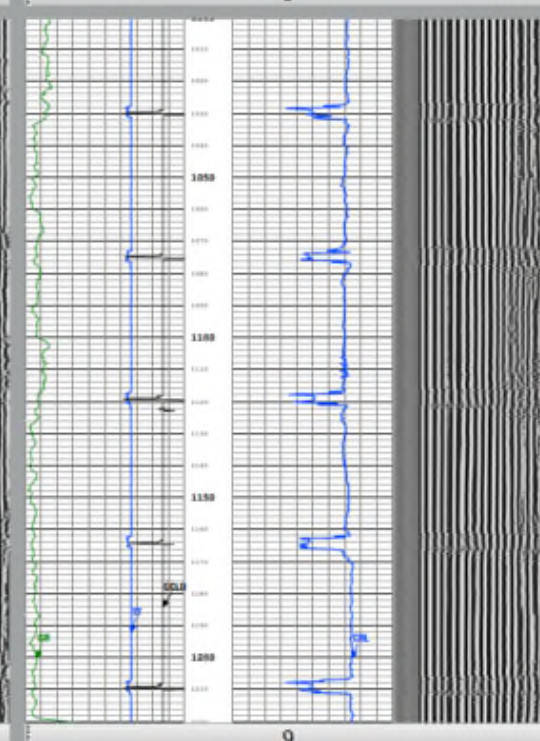
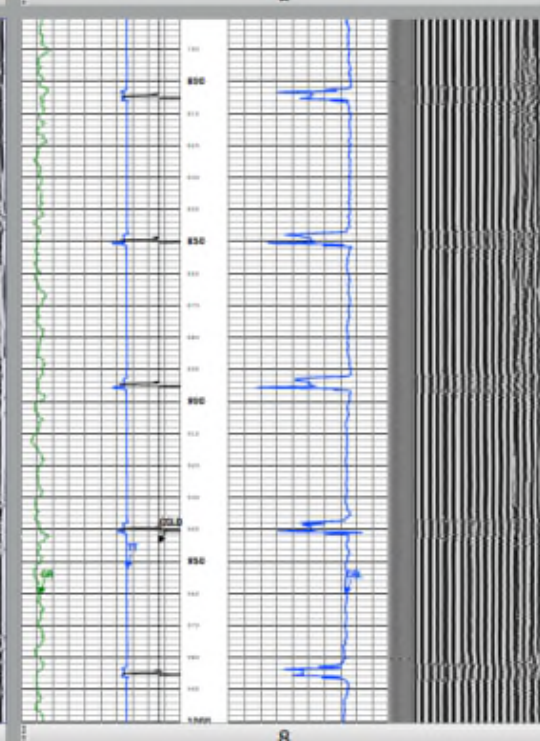
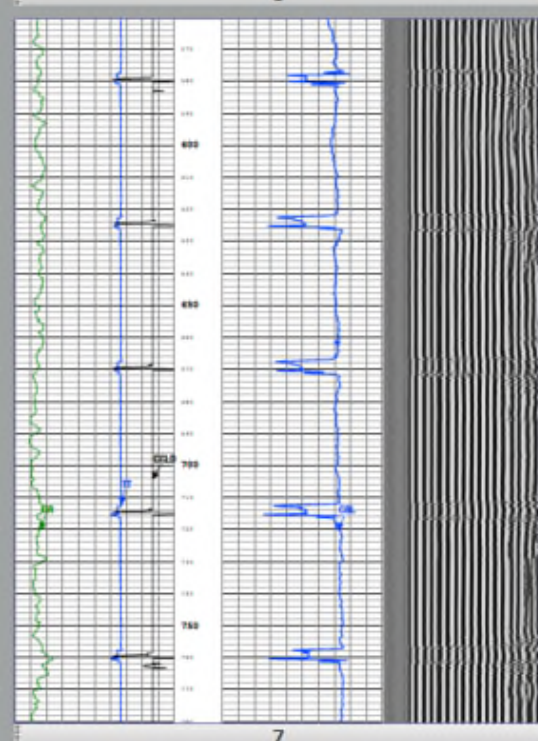
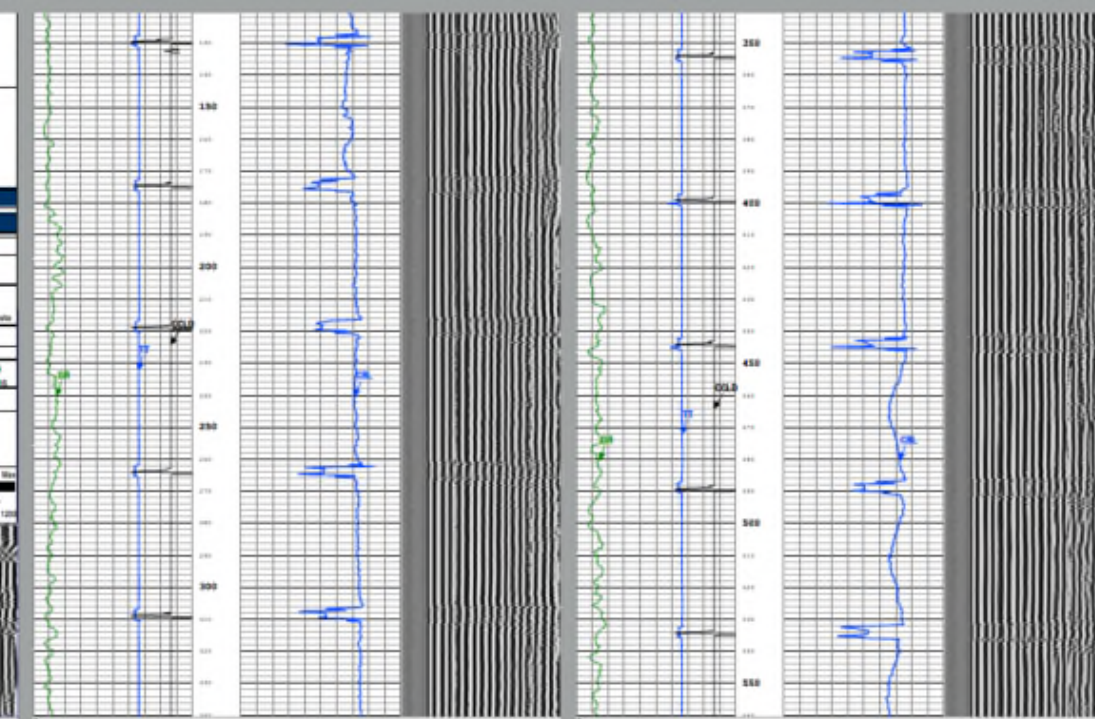
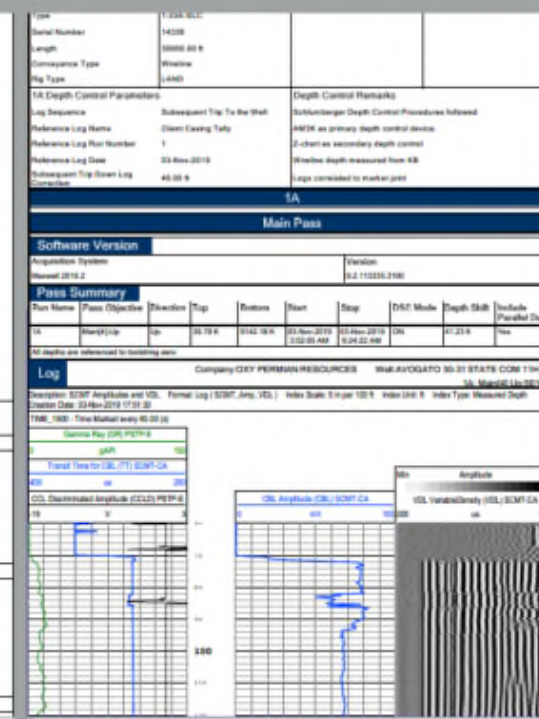
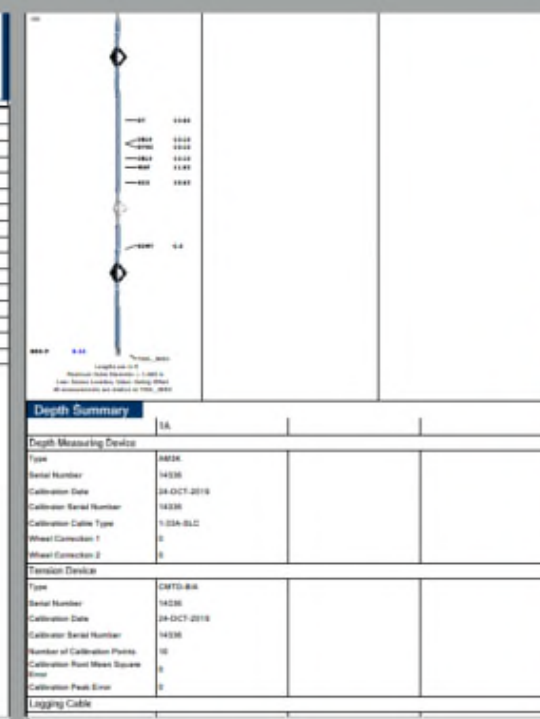
Borehole Size/Casing/Tubing Record

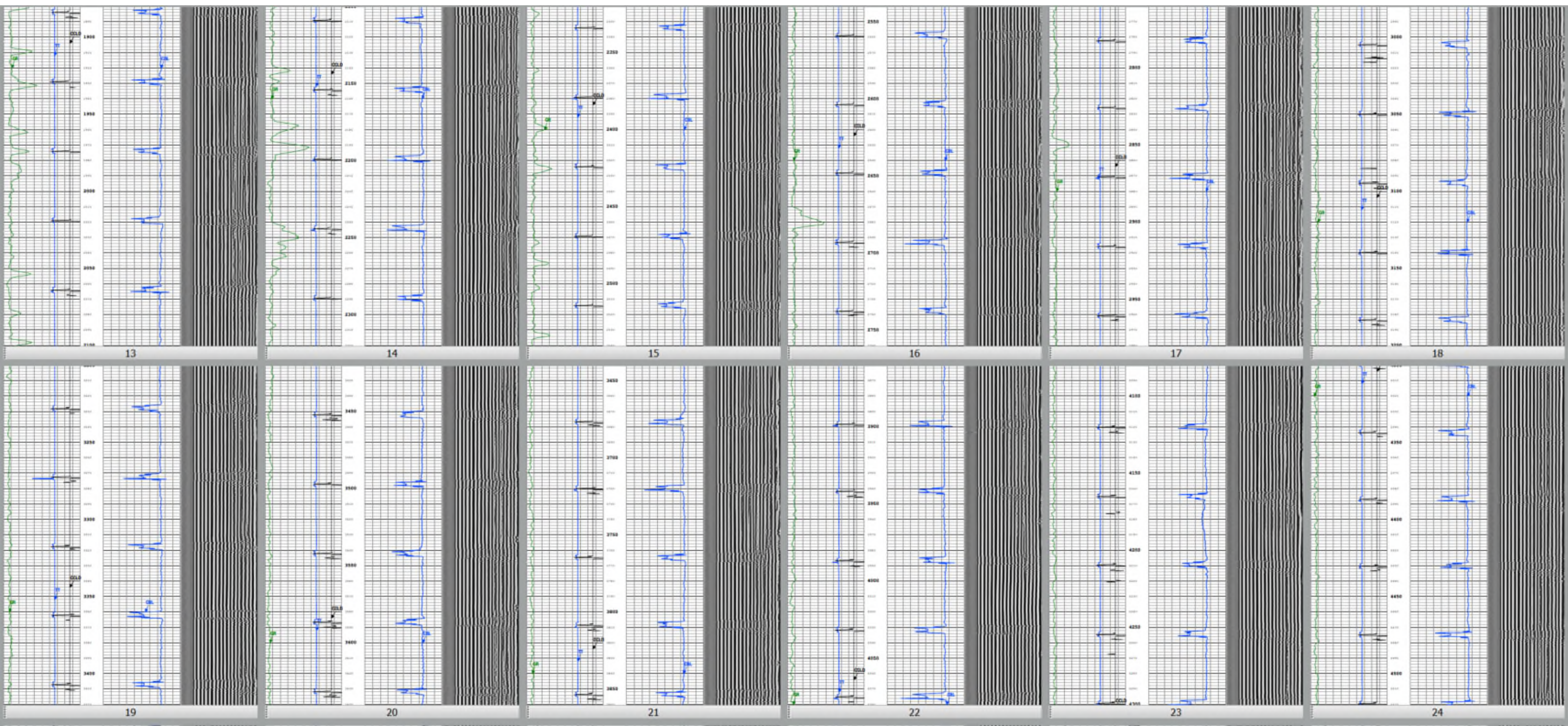
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3	12.25	0	0	
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5	12.25	0	0	
6	12.25	0	0	
7	12.25	0	0	
8	12.25	0	0	
9	12.25	0	0	
10	12.25	0	0	
11	12.25	0	0	
12	12.25	0	0	
13	12.25	0	0	
14	12.25	0	0	
15	12.25	0	0	
16	12.25	0	0	
17	12.25	0	0	
18	12.25	0	0	
19	12.25	0	0	
20	12.25	0	0	
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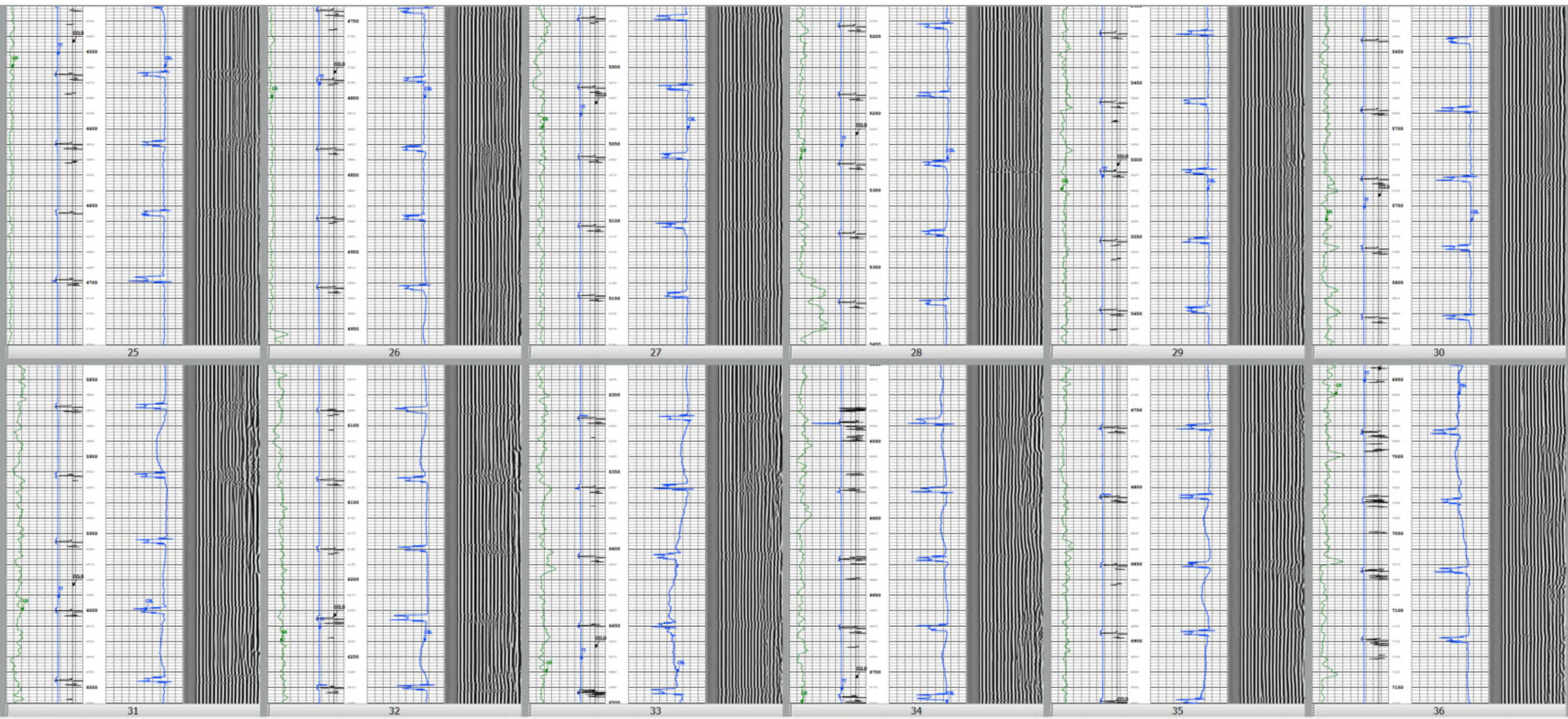
Remarks and Equipment Summary

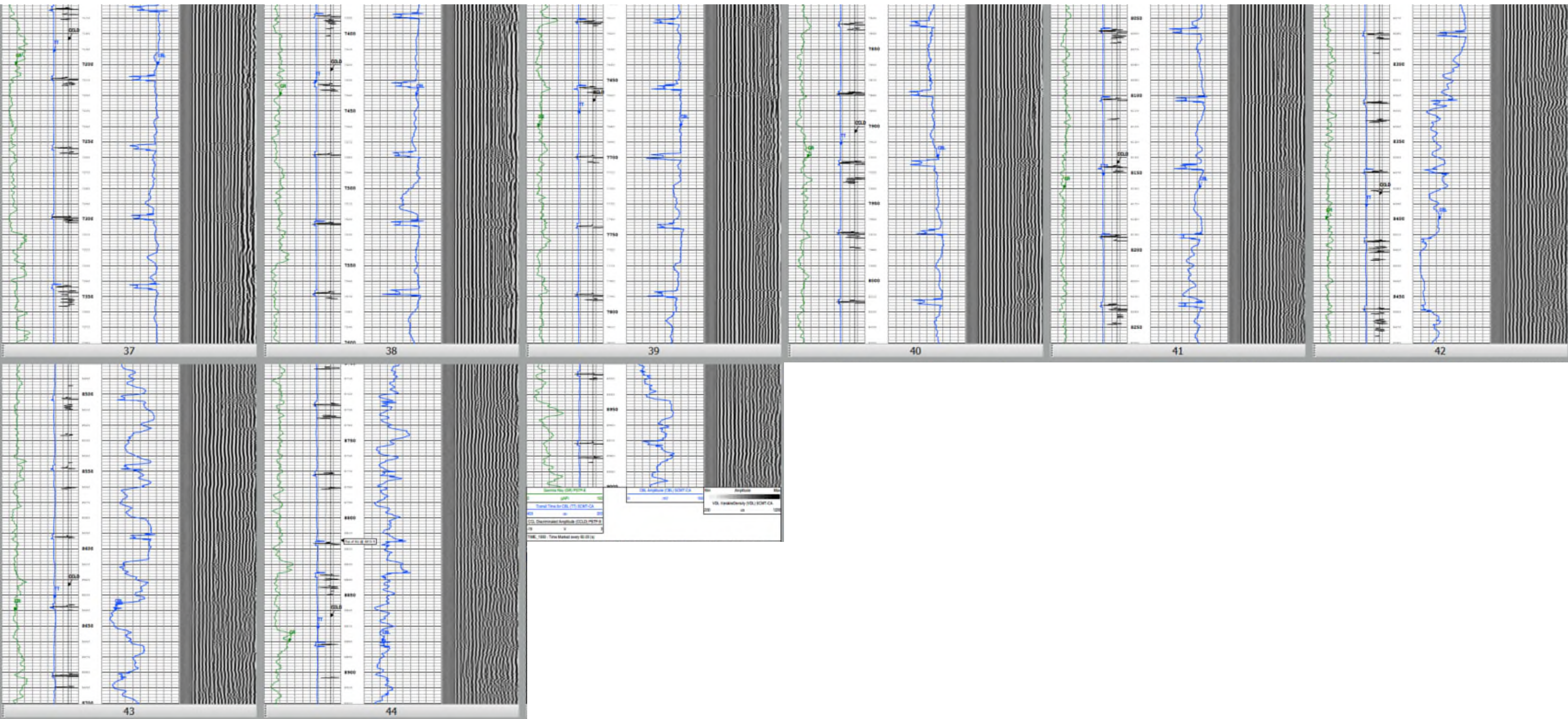
1A Toolstring

Toolstring run on per instructions
Logging interval from 8500 ft to surface
No pressure was applied during logging pass
Expanded Free Pipe Amplitude in 3.0" casing
Log compressed to marker point @ 8275 ft as per client's request









Side 1

OPERATOR: OXY USA INC

WELL NAME & NUMBER: AVOGATO 30-31 COM 13H

WELL LOCATION: <u>160' FNL 2375' FEL</u>	<u>B</u>	<u>30</u>	<u>22S</u>	<u>33E</u>
FOOTAGE LOCATION	UNIT LETTER	SECTION	TOWNSHIP	RANGE

WELLBORE SCHEMATIC

WELL CONSTRUCTION DATA
Surface Casing

AVOGATO 30 31 STATE COM 13H

*Note- Diagram not to scale

13 3/8" CSA 1060'
CMT TO SURFACE (CIRC)

9 5/8" CSA 8910'
CMT TO SURFACE (CIRC)

5 1/2" CSA 19,631'
TOC 7988' (CBL)

Avalon Perfs @ 9752 - 19,532'

Hole Size: 17.5" Casing Size: 13.375"
 Cemented with: 1340 sx. *or* _____ ft³
 Top of Cement: 0' Method Determined: CIRC

Intermediate Casing

Hole Size: 12.25" Casing Size: 9.625"
 Cemented with: 1600 sx. *or* _____ ft³
 Top of Cement: 0' Method Determined: CIRC

Production Casing

Hole Size: 8.5" Casing Size: 5.5"
 Cemented with: 2150 sx. *or* _____ ft³
 Top of Cement: 7988' Method Determined: CBL
 Total Depth: MD: 19645' / TVD: 9397'

Injection Interval

9752' MD/ 9396' TVD feet to 19532' MD/ 9397' TVD

(Perforated or Open Hole; indicate which)

Side 2

Tubing Size: 2.875" 6.5# L80 Lining Material: UNLINED

Type of Packer: AS1-X 5.5"

Packer Setting Depth: 8970' MD / 8926' 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: AVALON

3. Name of Field or Pool (if applicable): Red Tank

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. _____

N/A

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

UNDERLYING: 2ND BONE SPRING

Avogato 13H CBL

Company: DRY PERMAN RESOURCES
Well: AVOGATO 13H STATE COM OH
Field: REIDMARK
County: Stark
State: New Mexico

Log Type: Log (SCMT, Amp, VSL)
Log Date: 24-OCT-2019
Log Time: 1:58:00 PM

Well Sketch

Borehole Size/Casing/Tubing Record

Log	Log (ft)	Log (ft)	Log (ft)	Log (ft)	Log (ft)	Log (ft)	Log (ft)
Top Casing (ft)	0	0	0	0	0	0	0
Top Casing (ft)	0	0	0	0	0	0	0
Bottom Casing (ft)	0	0	0	0	0	0	0
Bottom Casing (ft)	0	0	0	0	0	0	0
Casing	0	0	0	0	0	0	0
Range (Depth)	0	0	0	0	0	0	0
Inner Diameter (in)	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Outer Diameter (in)	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Log (ft)	0	0	0	0	0	0	0
Top Casing (ft)	0	0	0	0	0	0	0
Bottom Casing (ft)	0	0	0	0	0	0	0
Bottom Casing (ft)	0	0	0	0	0	0	0

Remarks and Equipment Summary

1A. Toolstring

Toolstring run as per toolstring.

Logging Interval from 0000 ft to surface.

No pressure was applied during logging pass.

Expected True Pipe Amplitude in 5.0" casing: 21.00 dB

Log computed to marker point @ 2019 ft as per clients request.

1A. Remarks

Toolstring run as per toolstring.

Logging Interval from 0000 ft to surface.

No pressure was applied during logging pass.

Expected True Pipe Amplitude in 5.0" casing: 21.00 dB

Log computed to marker point @ 2019 ft as per clients request.

Depth Summary

Depth Measuring Device	Type	Serial Number	Calibration Date	Calibration Serial Number	Calibration Cable Type	Wheel Correction 1	Wheel Correction 2	Transition Device
1A	SCMT	14136	24-OCT-2019	14136	1-1304-BL2	0	0	ICMT-04

Pass Summary

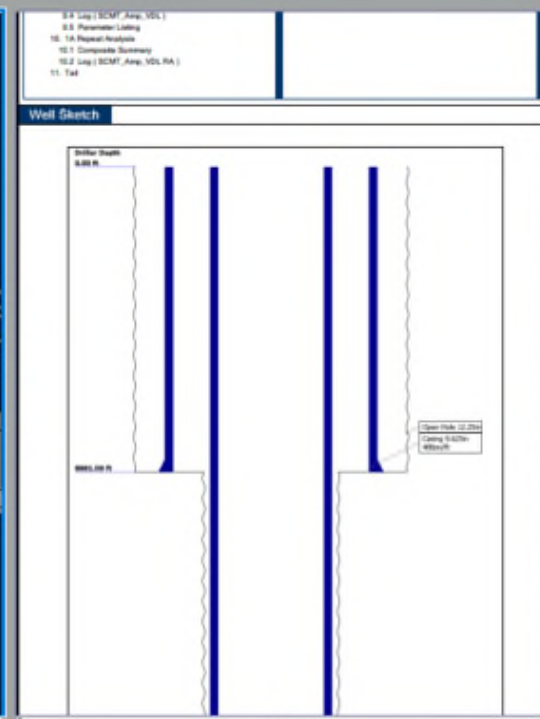
Pass Name	Pass Sequence	Direction	Top	Bottom	Start	Stop	ASIC Mode	Depth Shift	Include Parallel Data
1A	1	Down	0.00 ft	2019.00 ft	24-Oct-2019 1:58:00 PM	24-Oct-2019 4:10:00 PM	1	0.00 ft	Yes

Log

Description: SCMT Amplitude and VSL. Format: Log (SCMT, Amp, VSL). Index Scale: 5 in per 100 ft. Index Unit: ft. Index Type: Measured Depth. Channel Date: 24-Oct-2019 19:45:00.

TIME: 1000 - Time Marked every 60.00 sec

SCMT Amplitude (dB) SCMT-CA
 VSL True Pipe Amplitude (dB) SCMT-CA
 VSL True Pipe Density (kg/m3) SCMT-CA



Borehole Size/Casing/Tubing Record

Log	Log (ft)	Log (ft)	Log (ft)	Log (ft)	Log (ft)	Log (ft)	Log (ft)
Top Casing (ft)	0	0	0	0	0	0	0
Top Casing (ft)	0	0	0	0	0	0	0
Bottom Casing (ft)	0	0	0	0	0	0	0
Bottom Casing (ft)	0	0	0	0	0	0	0
Casing	0	0	0	0	0	0	0
Range (Depth)	0	0	0	0	0	0	0
Inner Diameter (in)	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Outer Diameter (in)	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Log (ft)	0	0	0	0	0	0	0
Top Casing (ft)	0	0	0	0	0	0	0
Bottom Casing (ft)	0	0	0	0	0	0	0
Bottom Casing (ft)	0	0	0	0	0	0	0

Remarks and Equipment Summary

1A. Toolstring

Toolstring run as per toolstring.

Logging Interval from 0000 ft to surface.

No pressure was applied during logging pass.

Expected True Pipe Amplitude in 5.0" casing: 21.00 dB

Log computed to marker point @ 2019 ft as per clients request.

1A. Remarks

Toolstring run as per toolstring.

Logging Interval from 0000 ft to surface.

No pressure was applied during logging pass.

Expected True Pipe Amplitude in 5.0" casing: 21.00 dB

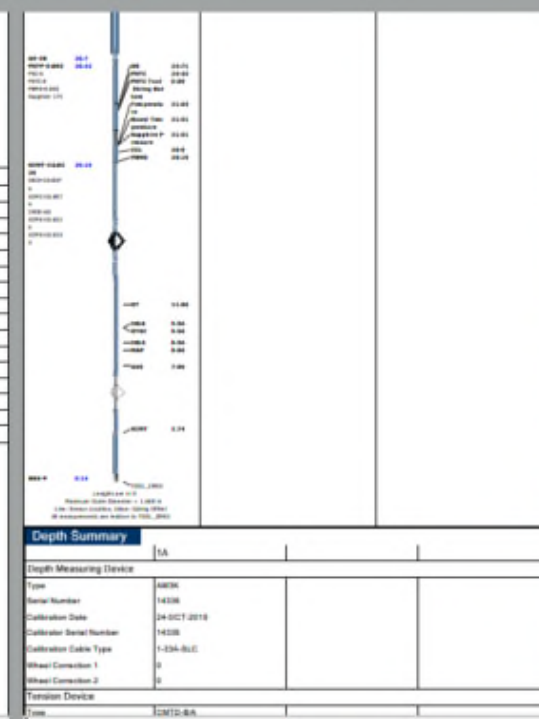
Log computed to marker point @ 2019 ft as per clients request.

Depth Summary

Depth Measuring Device	Type	Serial Number	Calibration Date	Calibration Serial Number	Calibration Cable Type	Wheel Correction 1	Wheel Correction 2	Transition Device
1A	SCMT	14136	24-OCT-2019	14136	1-1304-BL2	0	0	ICMT-04

Pass Summary

Pass Name	Pass Sequence	Direction	Top	Bottom	Start	Stop	ASIC Mode	Depth Shift	Include Parallel Data
1A	1	Down	0.00 ft	2019.00 ft	24-Oct-2019 1:58:00 PM	24-Oct-2019 4:10:00 PM	1	0.00 ft	Yes



Serial Number: 14136
Calibration Date: 24-OCT-2019
Calibration Serial Number: 14136
Number of Calibration Points: 10
Calibration Root Mean Square Error: 0.00
Calibration Peak Error: 0.00

Logging Cable

Type: 1-1304-BL2
 Serial Number: 14136
 Length: 20000.00 ft
 Connector Type: Window
 Log Type: Lead

1A Depth Control Parameters

Log Sequence: Subsequent Trip To the Well
 Reference Log Name: Client casing only
 Reference Log Run Number: 1
 Reference Log Date: 14-Oct-2019
 Subsequent Trip Start Log: 14-Oct-2019

Depth Control Remarks

Schlumberger Depth Control Procedure followed.
 AMM as primary depth control device.
 Z offset as secondary depth control.
 Wellbore depth measured from 0B.
 Logs computed to marker point.

1A

Software Version

Application System: Version: 8.2.110308.0108
 Released: 2019.02

Pass Summary

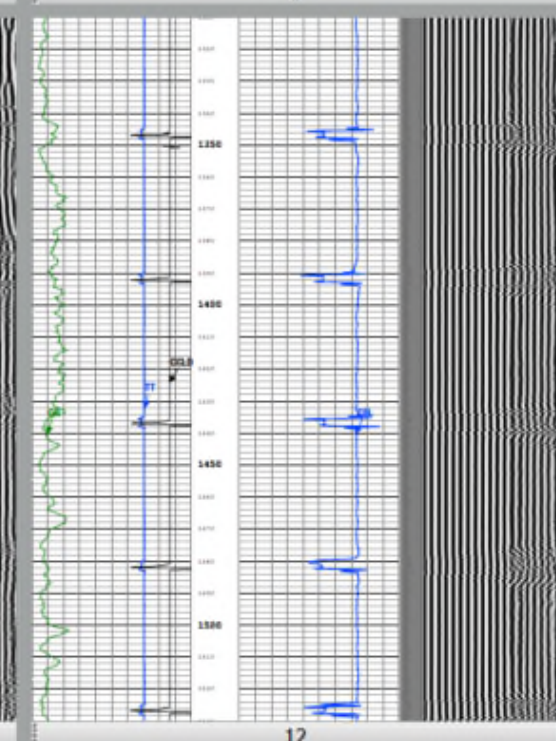
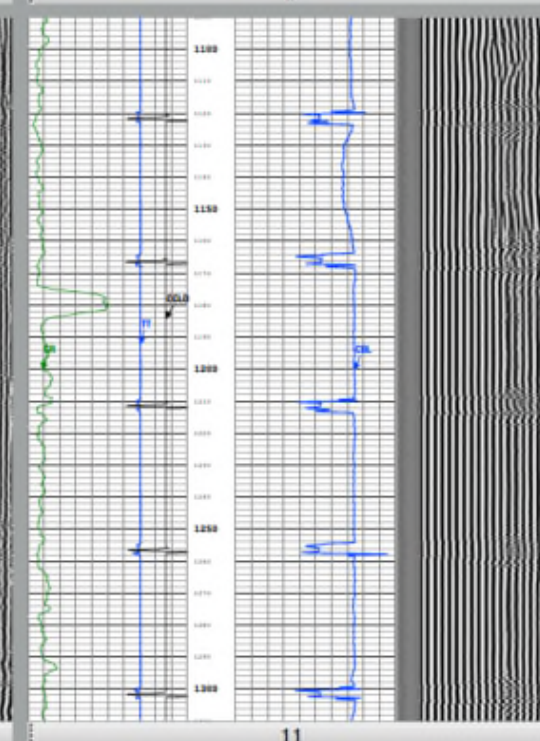
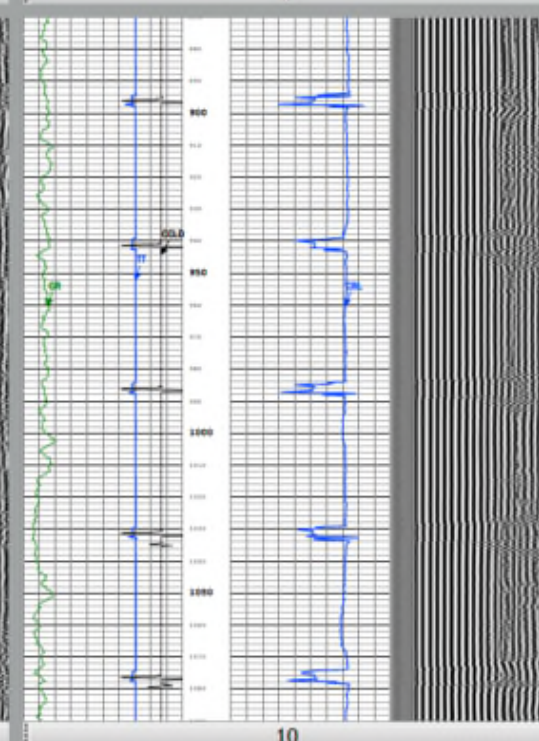
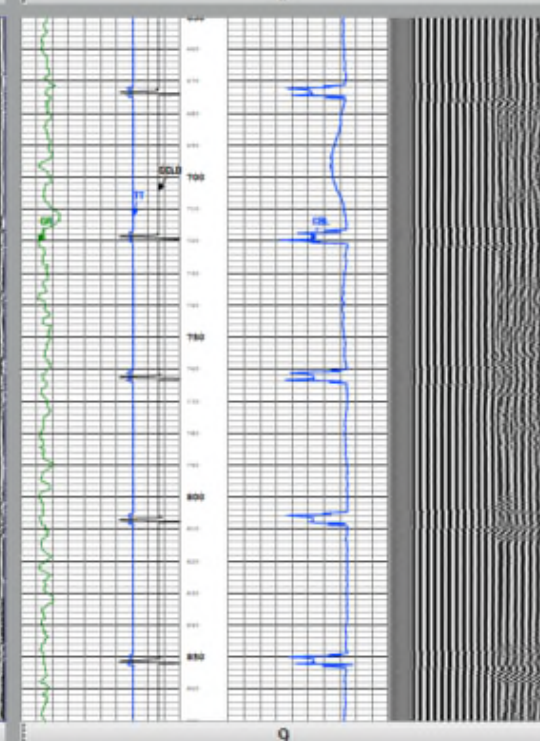
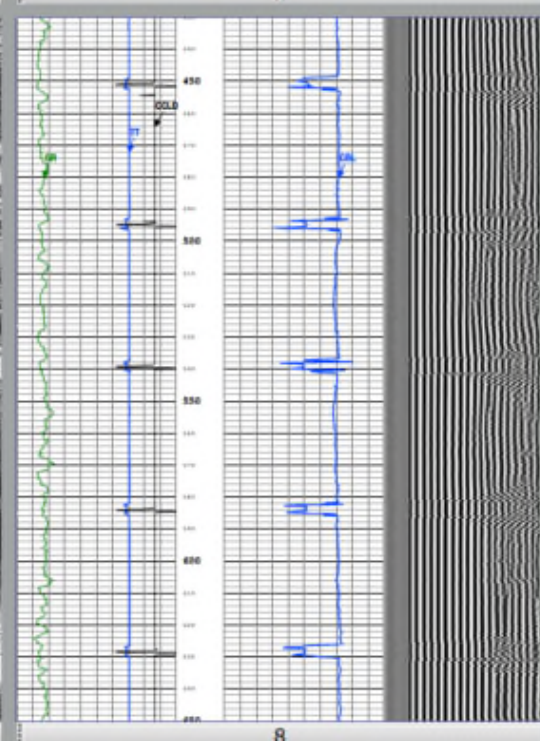
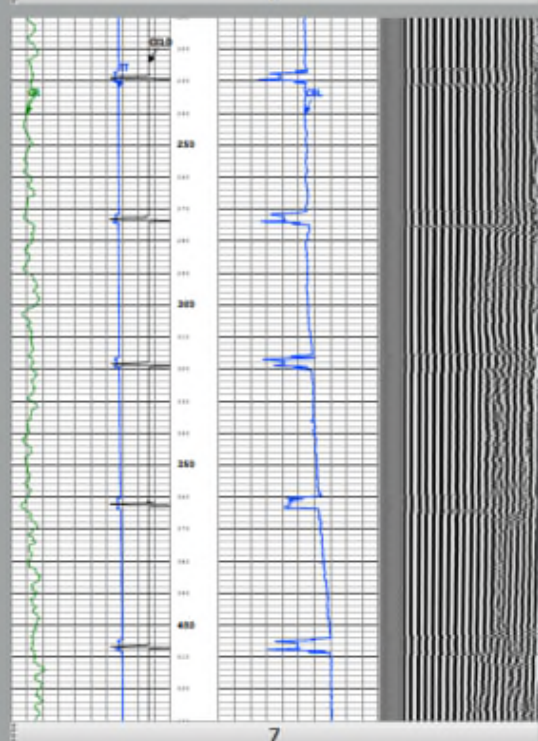
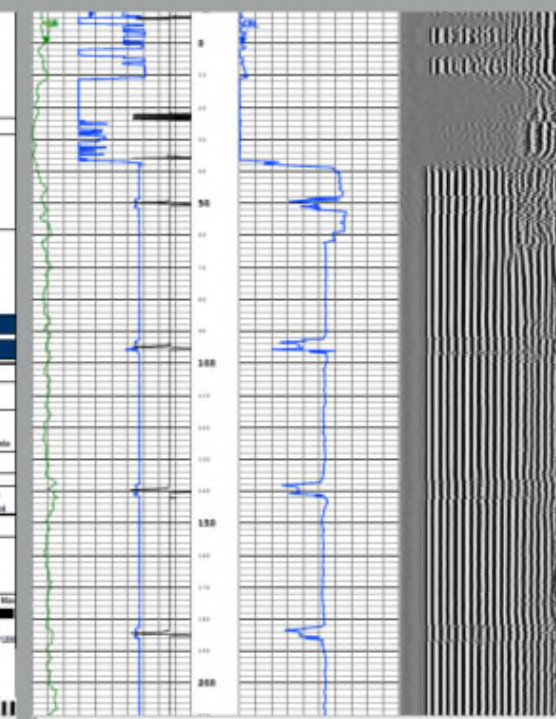
Pass Name	Pass Sequence	Direction	Top	Bottom	Start	Stop	ASIC Mode	Depth Shift	Include Parallel Data
1A	1	Down	0.00 ft	2019.00 ft	24-Oct-2019 1:58:00 PM	24-Oct-2019 4:10:00 PM	1	0.00 ft	Yes

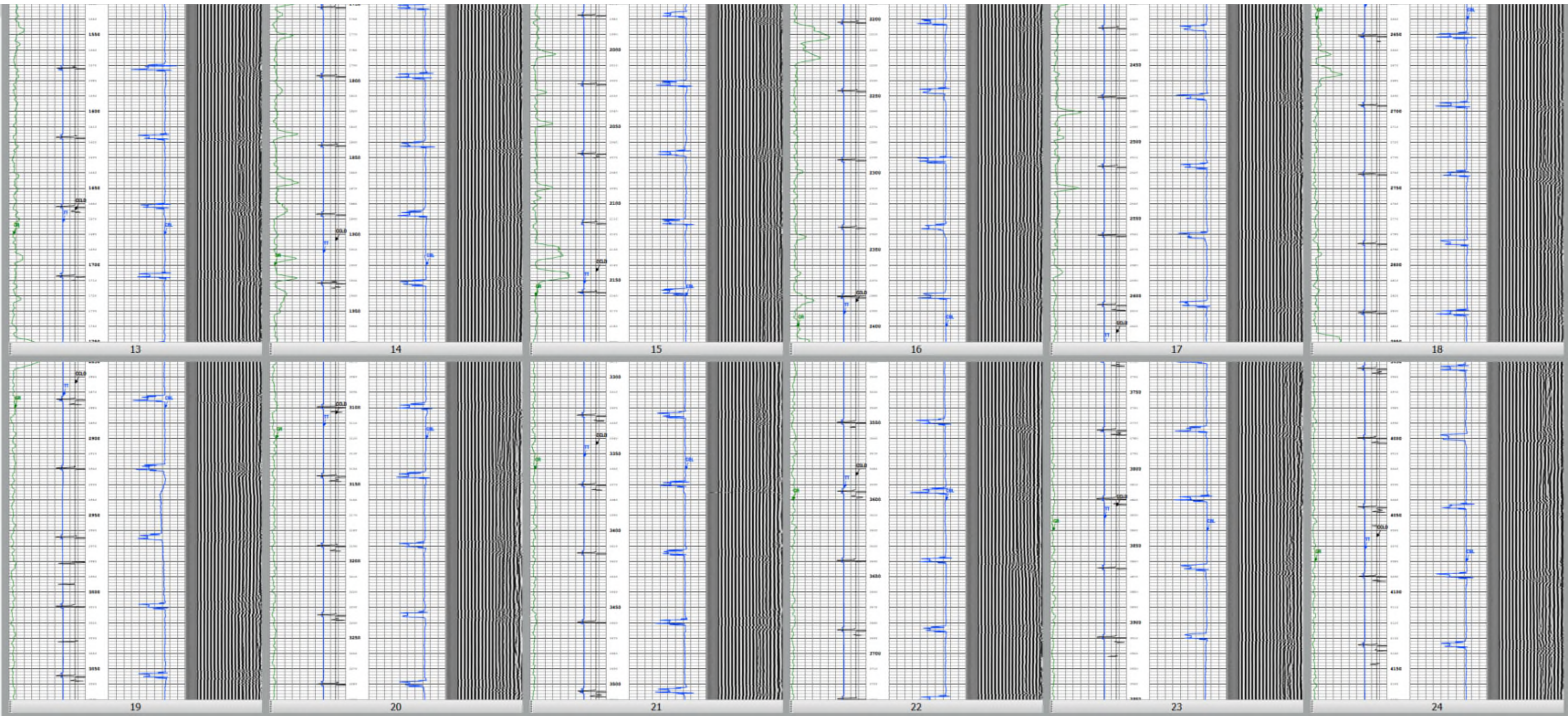
Log

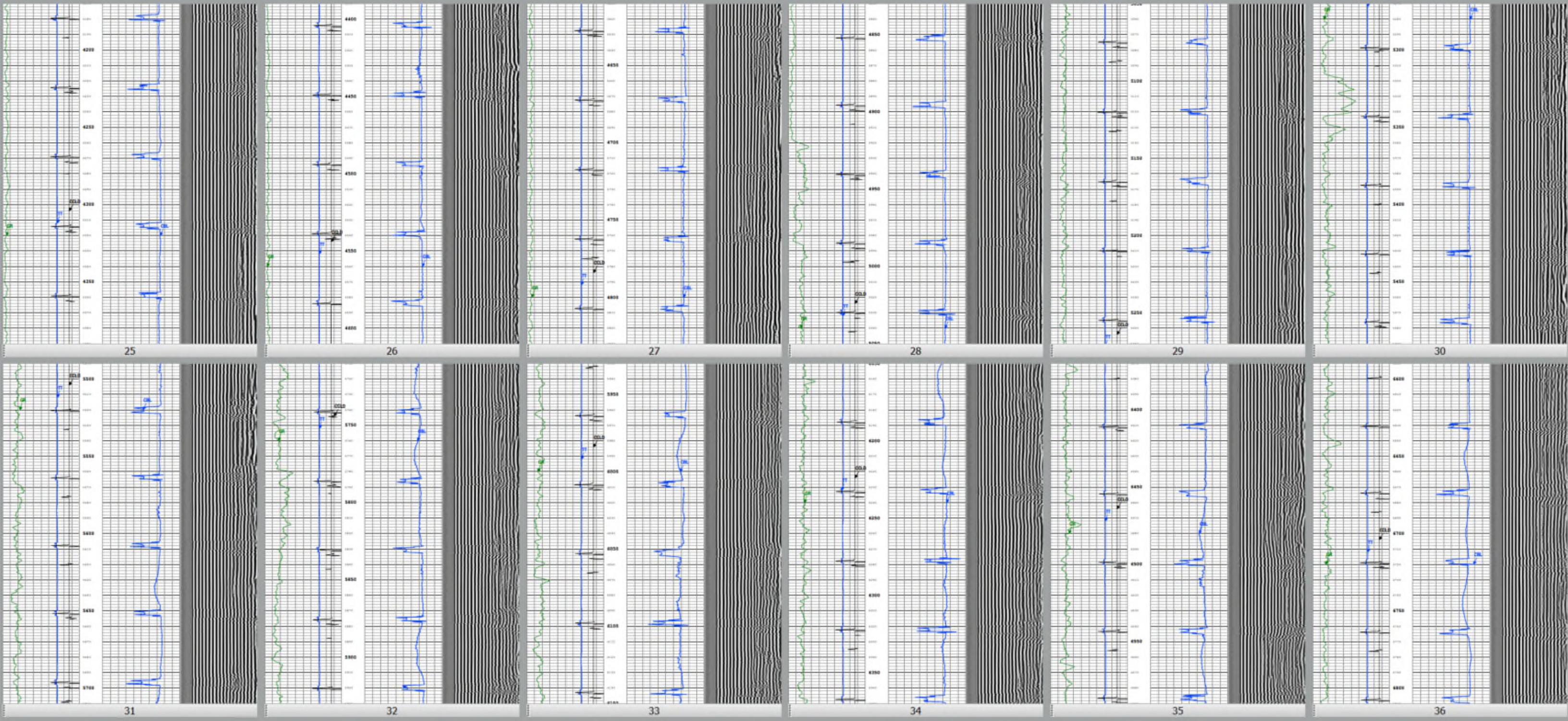
Description: SCMT Amplitude and VSL. Format: Log (SCMT, Amp, VSL). Index Scale: 5 in per 100 ft. Index Unit: ft. Index Type: Measured Depth. Channel Date: 24-Oct-2019 19:45:00.

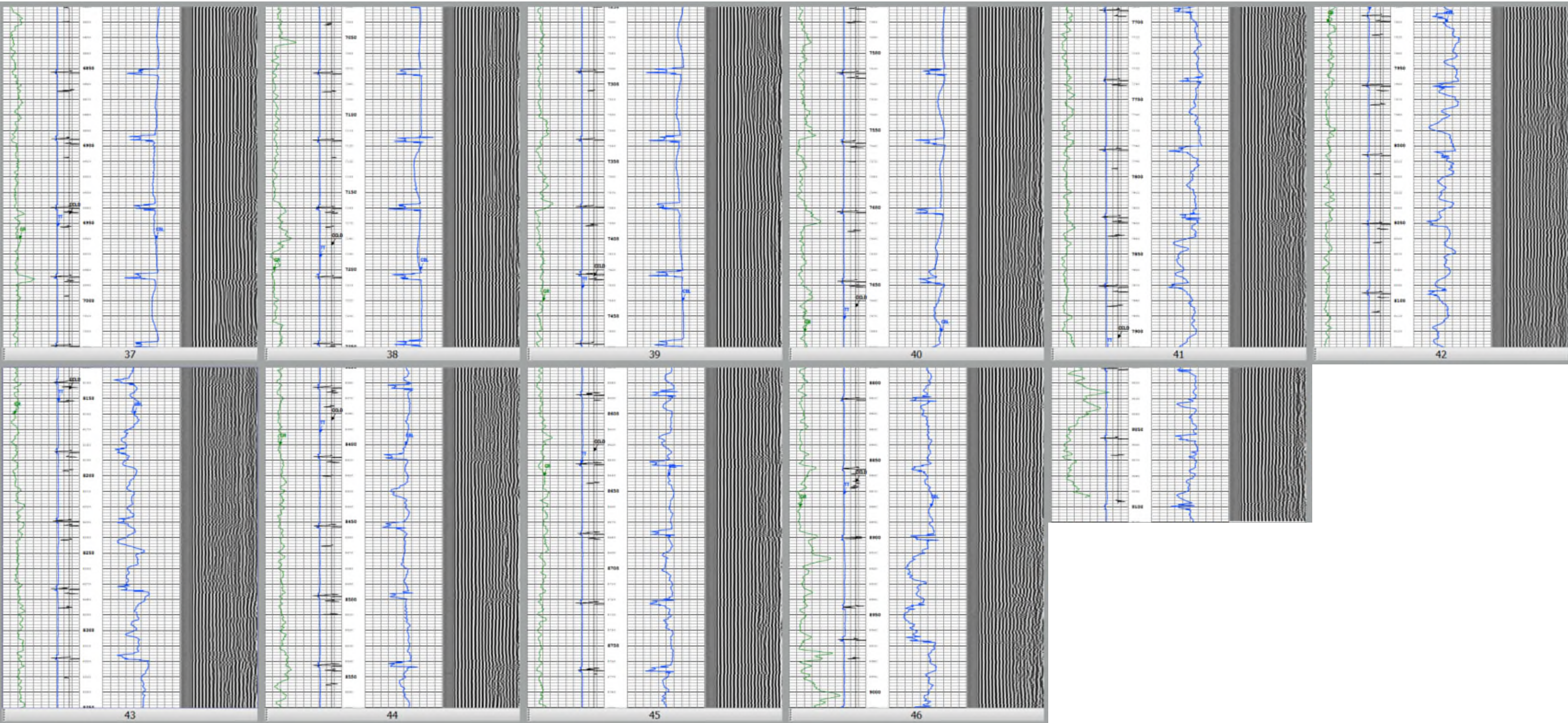
TIME: 1000 - Time Marked every 60.00 sec

SCMT Amplitude (dB) SCMT-CA
 VSL True Pipe Amplitude (dB) SCMT-CA
 VSL True Pipe Density (kg/m3) SCMT-CA









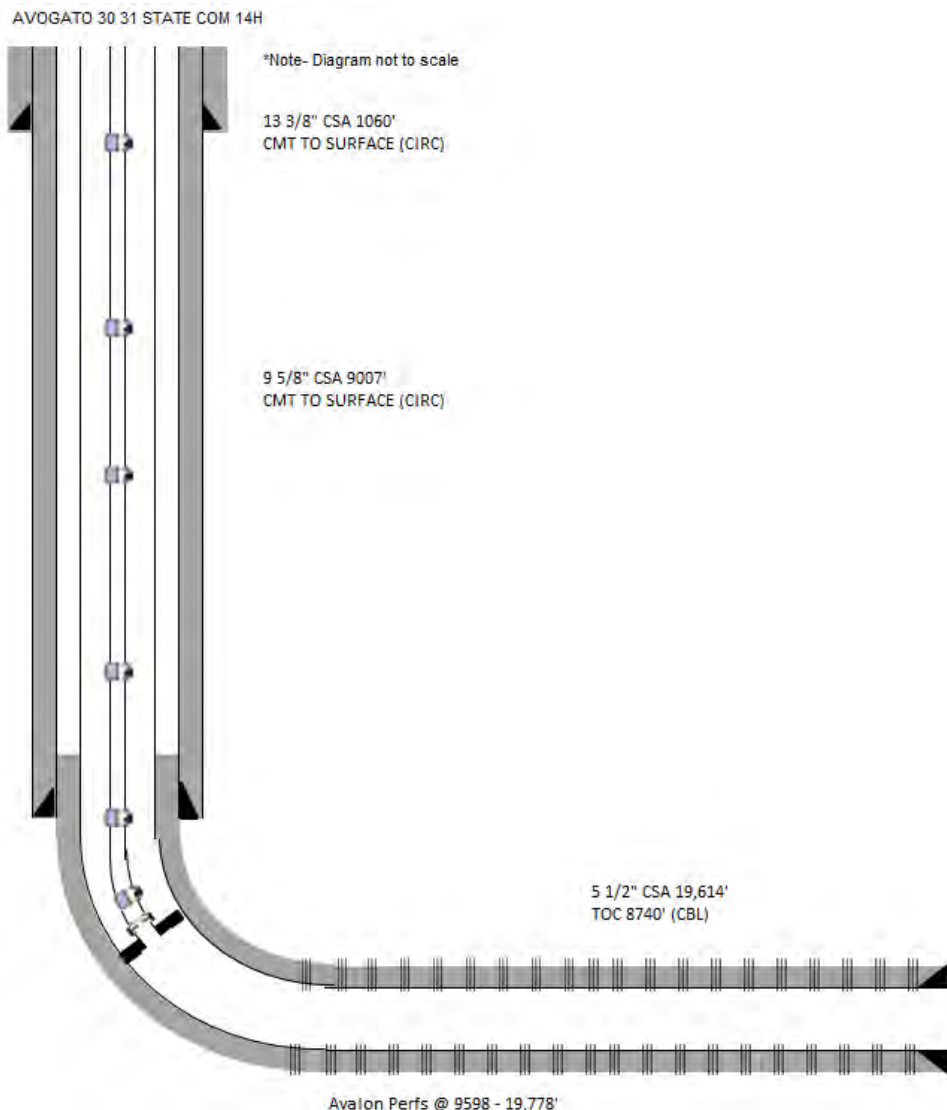
Side 1

OPERATOR: OXY USA INC

WELL NAME & NUMBER: AVOGATO 30-31 COM 14H

WELL LOCATION: 160' FNL 2340' FEL	B	30	22S	33E
FOOTAGE LOCATION	UNIT LETTER	SECTION	TOWNSHIP	RANGE

WELLBORE SCHEMATIC



WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 17.5" Casing Size: 13.375"

Cemented with: 1340 sx. **or** _____ ft³

Top of Cement: 0' Method Determined: CIRC

Intermediate Casing

Hole Size: 12.25" Casing Size: 9.625"

Cemented with: 2125 sx. **or** _____ ft³

Top of Cement: 0' Method Determined: CIRC

Production Casing

Hole Size: 8.5" Casing Size: 5.5"

Cemented with: 2135 sx. **or** _____ ft³

Top of Cement: 8740' Method Determined: CBL

Total Depth: MD: 19891' / TVD: 9532'

Injection Interval

9598' MD/ 9488' TVD feet to 19778' MD/ 9540' TVD Perforated

(Perforated or Open Hole; indicate which)

Side 2

Tubing Size: 2.875" 6.5# L80 Lining Material: UNLINED

Type of Packer: 5.5" AS1

Packer Setting Depth: 9090' MD / 9045' TVD

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

Additional Data

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

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

PRODUCER- OIL

2. Name of the Injection Formation: AVALON

3. Name of Field or Pool (if applicable): Red Tank

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. _____

N/A

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

UNDERLYING: 2ND BONE SPRING

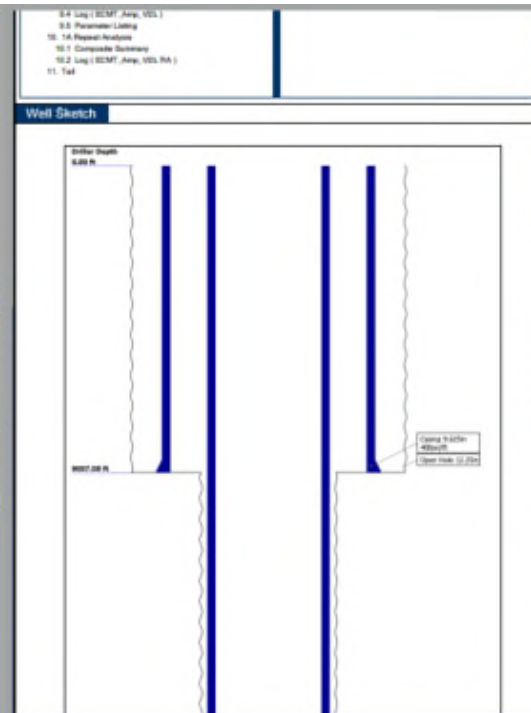
Avogato 14H CBL

Company: OXY PERMANENT RESOURCES
Well: AVOGATO 30-31 STATE COM 14H
Field: TAMAS
County: LEA
State: NEW MEXICO
Current Run Log
Current Run Log
Current Run Log

Disclaimer:
 THE USE OF AND RELIANCE UPON THIS RECORDED DATA BY THE USER-NAMED COMPANY AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVE, AGENTS, CONSULTANTS AND EMPLOYEES IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING ANY RESTRICTIONS ON USE OF THE RECORDED DATA, IN DISPLAYS AND SHOTS OF INFORMATION AND REPRESENTATIONS REGARDING COMPANY'S USE AND RELIANCE UPON THE RECORDED DATA, AND IS CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY ERRORS, OMISSIONS OR DECISIONS MADE IN CONNECTION WITH THE USE OF THIS RECORDED DATA.

Contents:

1. Header
2. Disclaimer
3. Contents
4. Well Sketch
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6. Remarks and Equipment Summary
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8. 1A Main Pass
9. 1A Integration Summary
10. Software Version
11. Composite Summary
12. Log (SCMT, Amp, VCL)
13. Passer Log
14. Repeat Pass
15. Integration Summary
16. Composite Summary

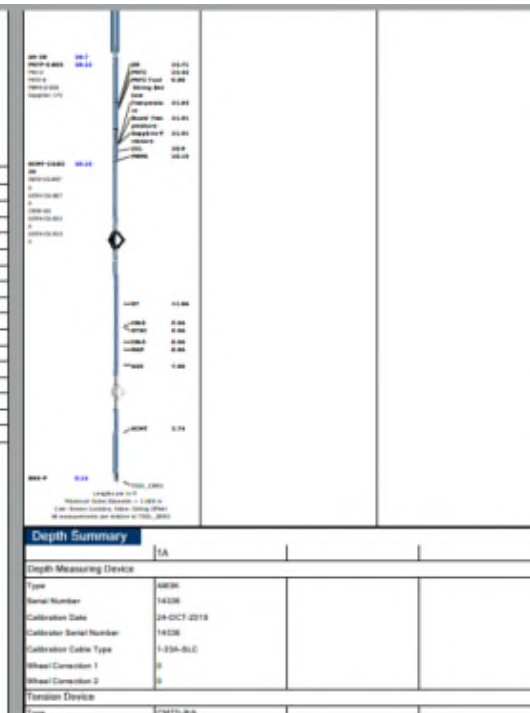


Borehole Size/Casing/Tubing Record

Log	Top (ft)	Bottom (ft)	Length (ft)	Outer Diameter (in)	Inner Diameter (in)	Weight (lb/ft)	Material
3.4	0	1000	1000	4.5	3.5	10	Steel
3.5	1000	1500	500	4.5	3.5	10	Steel
10.1	1500	2000	500	4.5	3.5	10	Steel
10.2	2000	2500	500	4.5	3.5	10	Steel

Remarks and Equipment Summary

Logging Interval from 0000 to 2000 ft on surface.
 No pressure was applied during logging pass.
 Expanded Free Pipe Amplitude to 5.0" casing (11.4:1 exp).
 Logs completed to marker point @ 2048 ft on per client request.



Log

Company: OXY PERMANENT RESOURCES
 Well: AVOGATO 30-31 STATE COM 14H
 1A, Log Date: 2020

Log Parameters:

Serial Number	14330
Calibration Date	24-OCT-2018
Calibration Serial Number	14330
Number of Calibration Points	10
Calibration Root Mean Square Error	0
Calibration Peak Error	0
Logging Cable	
Type	1.034-81.0
Serial Number	14330
Length	30000.00 ft
Conveyance Type	Wireline
Rig Type	

1A Depth Control Parameters

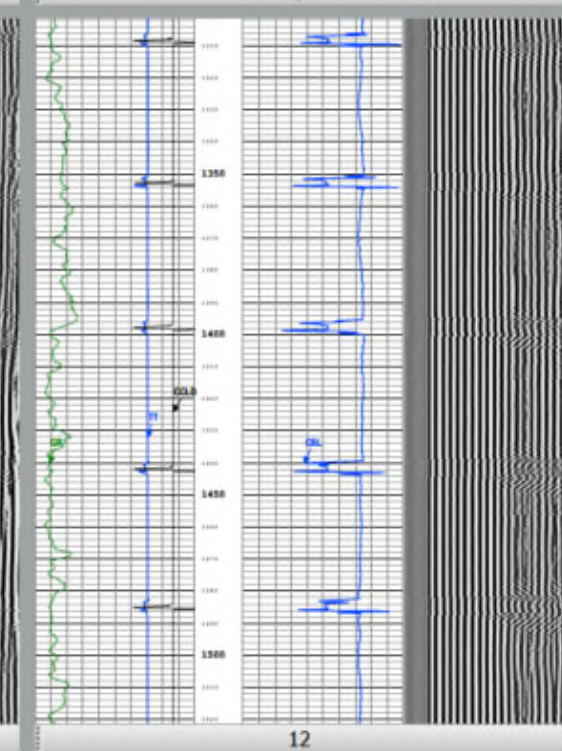
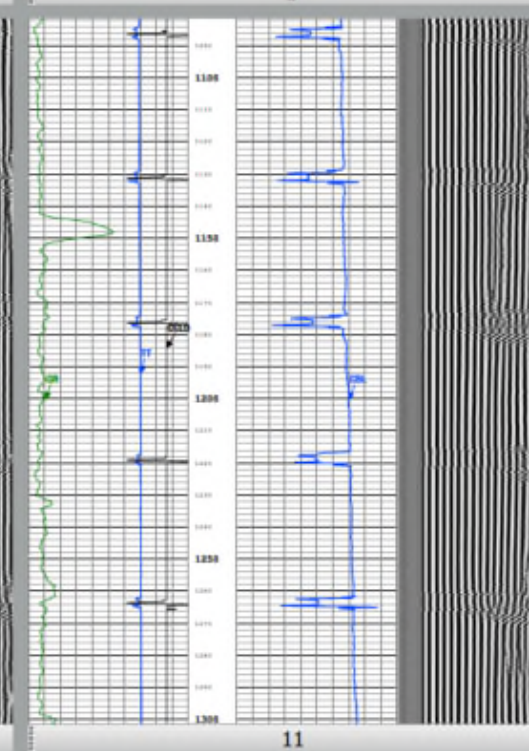
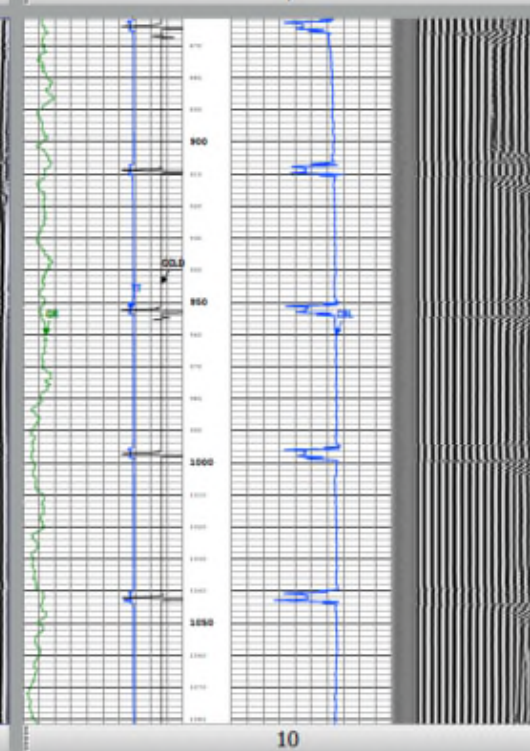
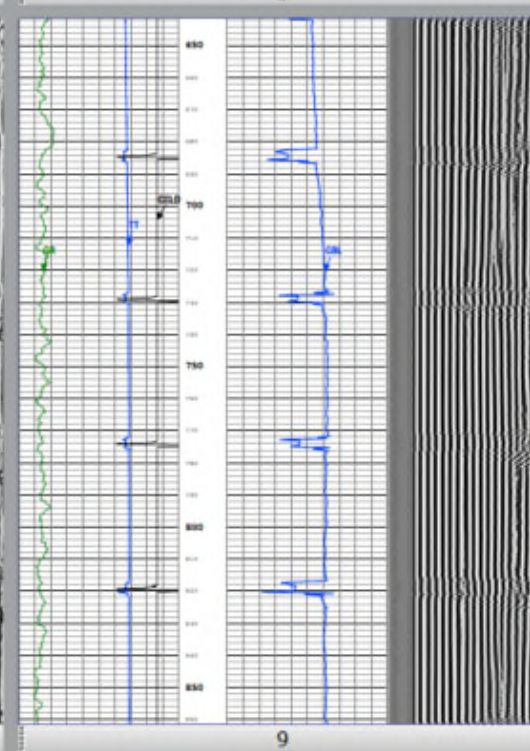
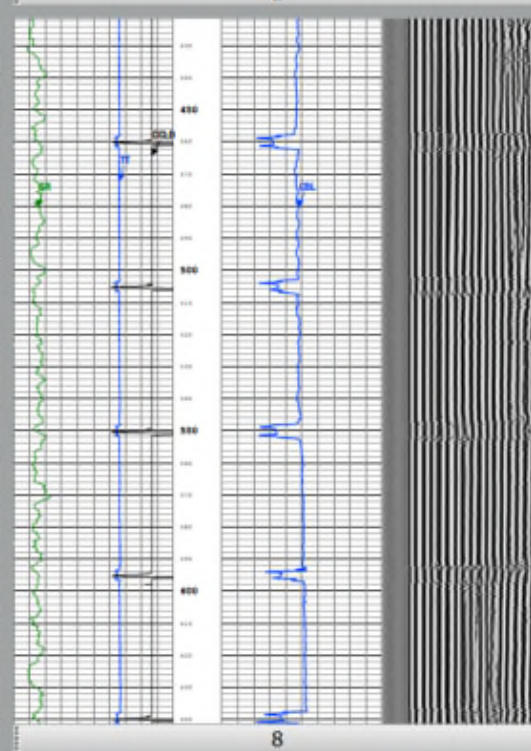
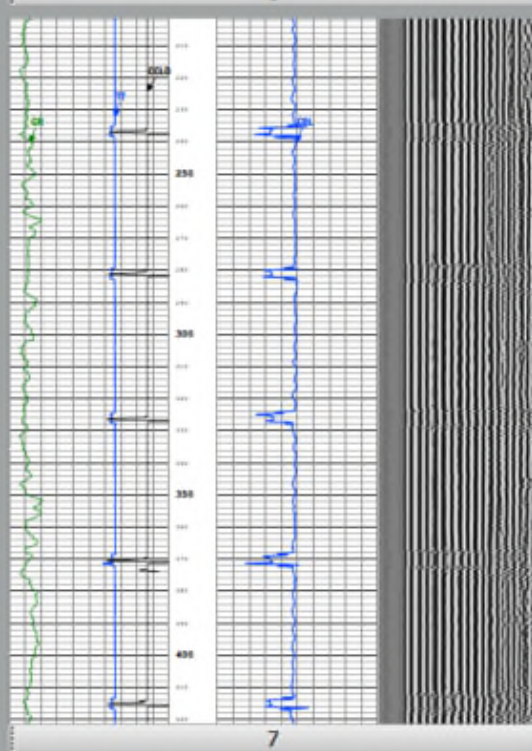
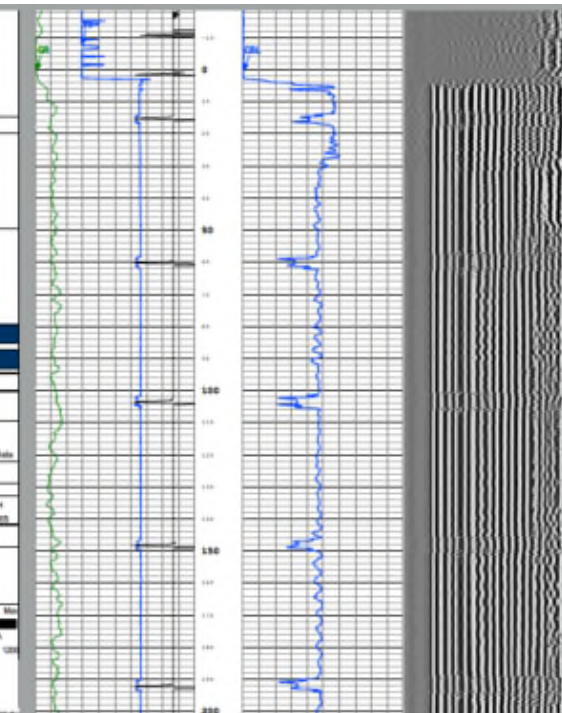
Log Sequence	First Log to the Well	Schlumberger Depth Control Procedures followed
Rig Up Length At Surface	4800	as primary depth control device
Rig Up Length At Bottom	0	no secondary depth control
Rig Up Length Correction		stroke depth measured from RB
Stretch Correction		logs completed to marker point
Tool Zero Check At Surface		

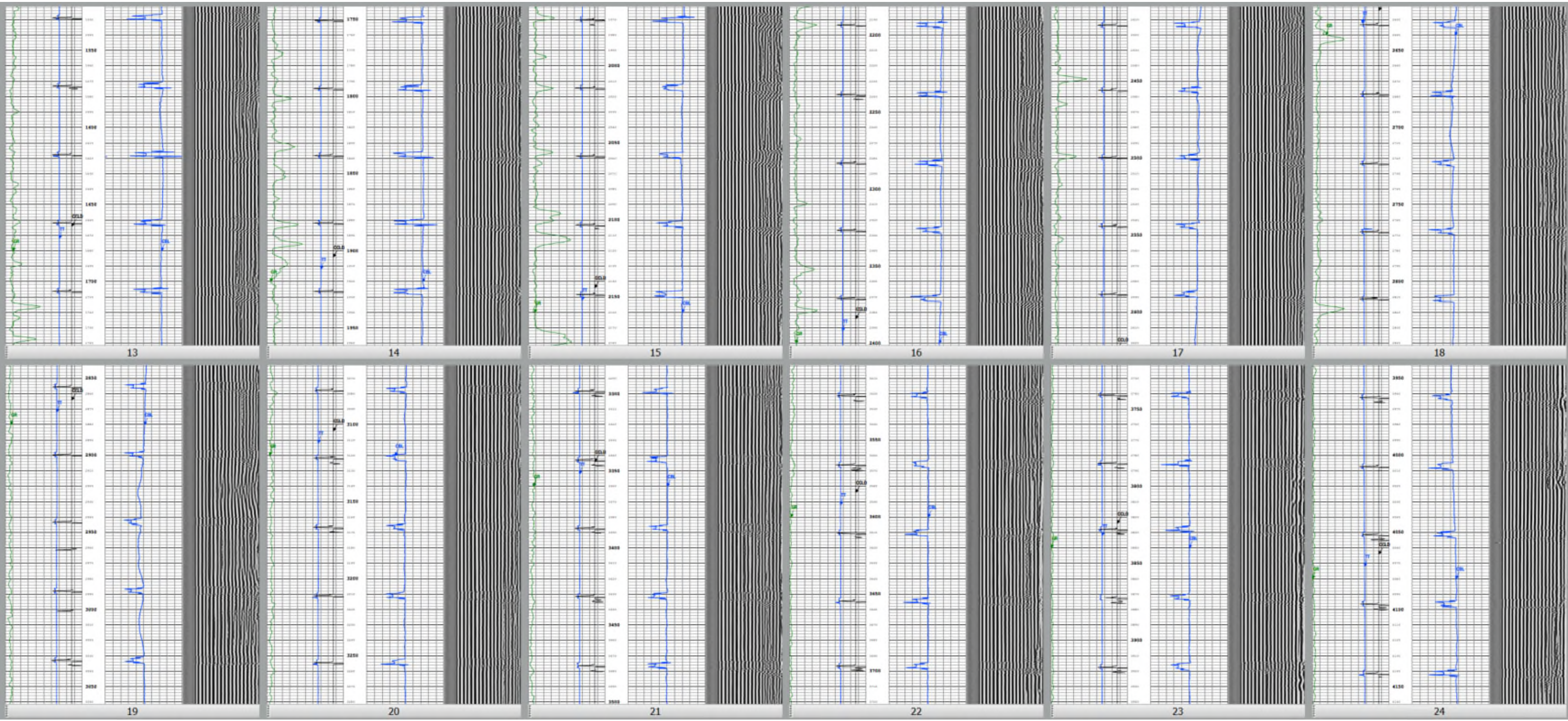
Software Version

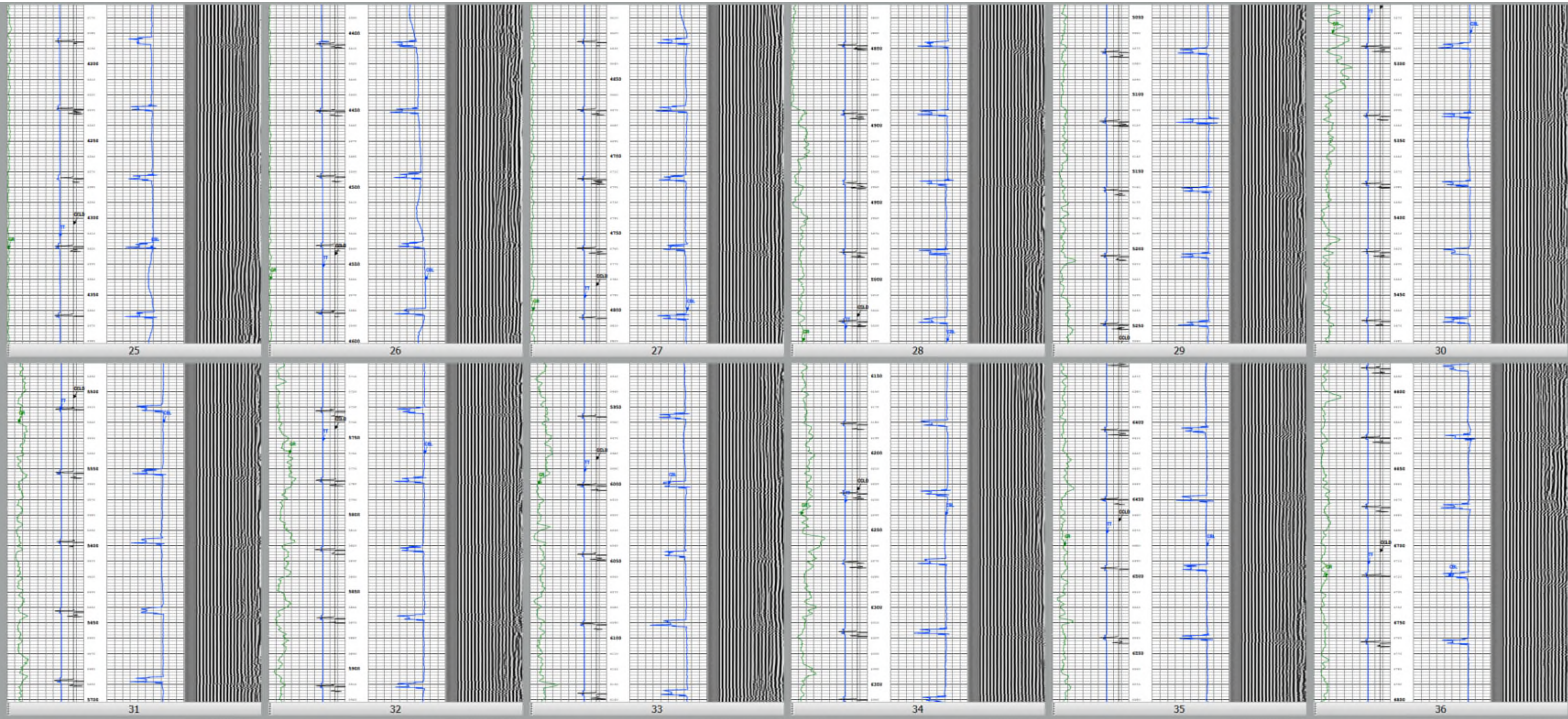
Acquisition System	Version
Model	A.2.110003.1000

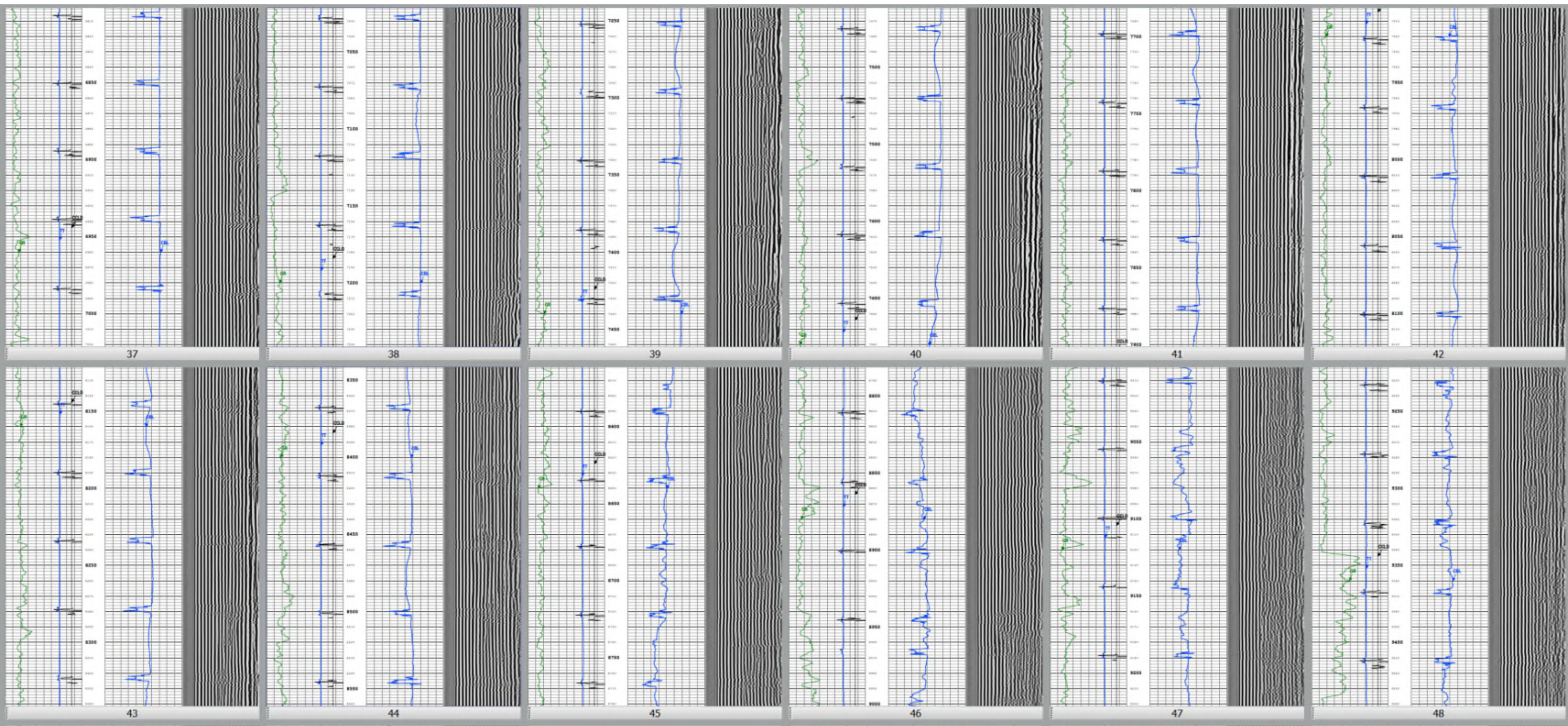
Pass Summary

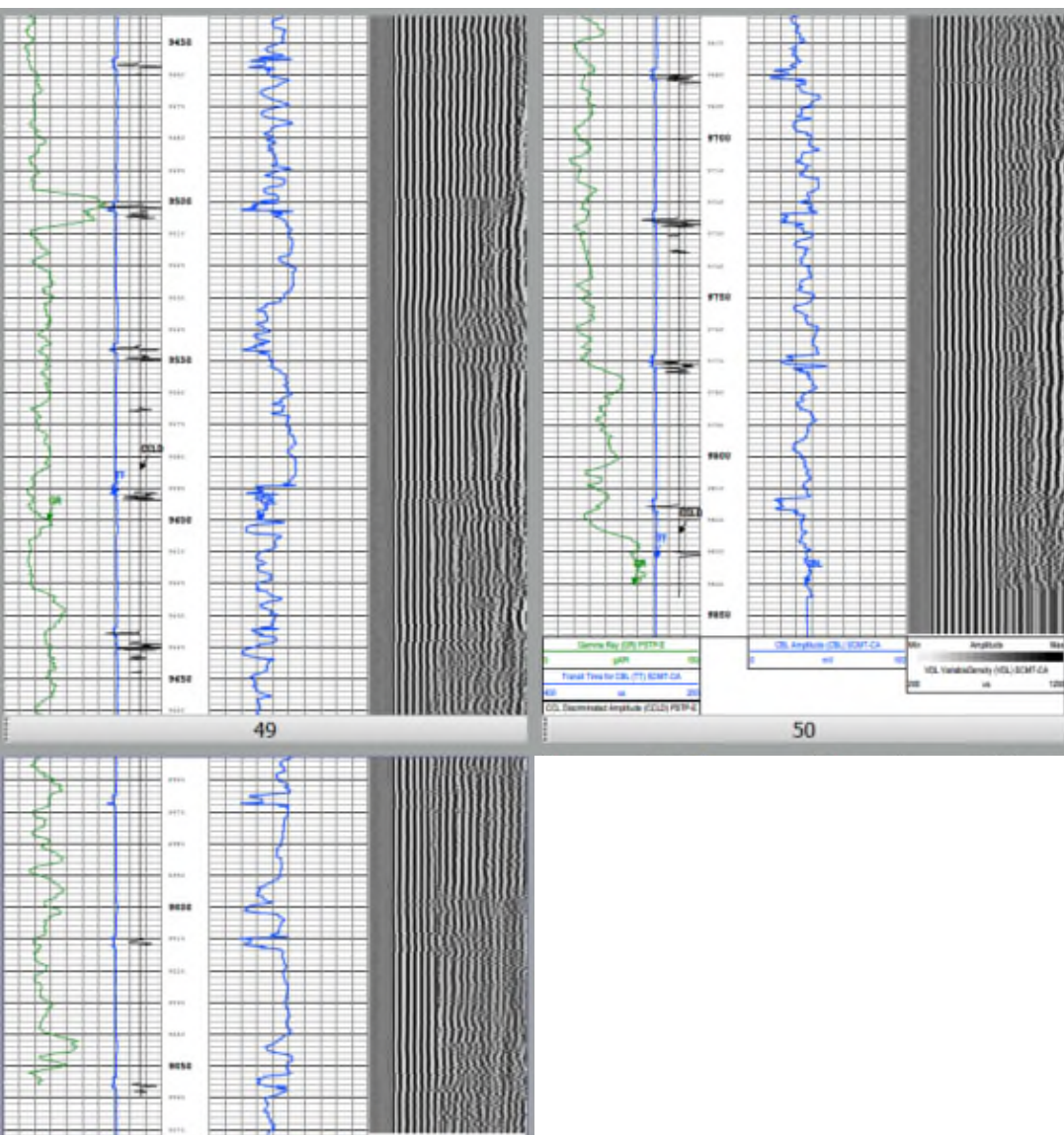
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	OSC Mode	Depth Shift	Include Parallel Tube
1A	1A-PT-1A	IN	11.30.0	2048.0	24-Oct-2018 8:02:27 PM	24-Oct-2018 8:02:34 PM	CA	0.00 ft	Yes











Side 1

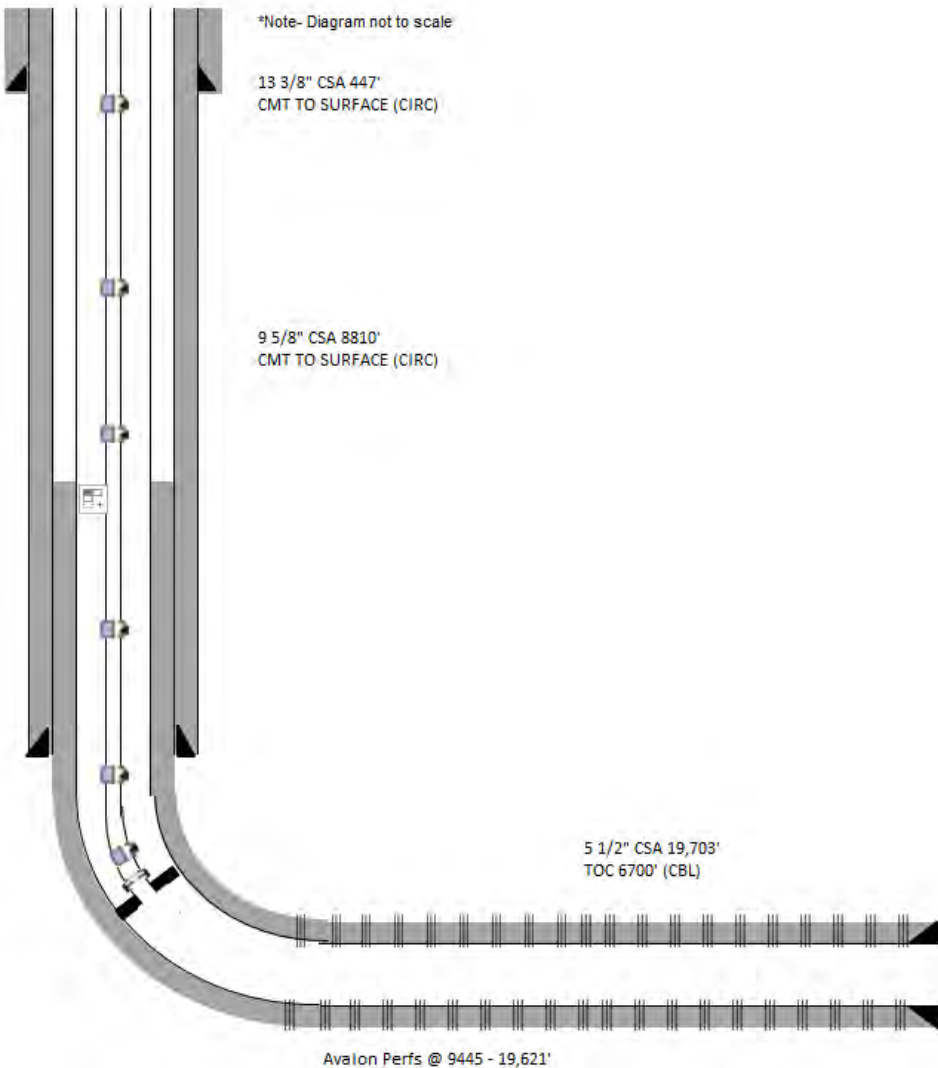
OPERATOR: OXY USA INC

WELL NAME & NUMBER: TACO CAT 27-34 FEDERAL COM 11H

WELL LOCATION: <u>260' FNL 855' FWL</u>	<u>D</u>	<u>27</u>	<u>22S</u>	<u>32E</u>
FOOTAGE LOCATION	UNIT LETTER	SECTION	TOWNSHIP	RANGE

WELLBORE SCHEMATIC

TACO CAT 27-34 FEDERAL COMM 11H



WELL CONSTRUCTION DATA
Surface Casing

Hole Size: 17.5" Casing Size: 13.375"
 Cemented with: 800 sx. or _____ ft³
 Top of Cement: SURFACE Method Determined: CIRC

Intermediate Casing

Hole Size: 9.875" Casing Size: 7.625"
 Cemented with: 2225 sx. or _____ ft³
 Top of Cement: 204' Method Determined: Calc

Production Casing

Hole Size: 6.750" Casing Size: 5.5"
 Cemented with: 705 sx. or _____ ft³
 Top of Cement: 6700' Method Determined: CBL
 Total Depth: MD 19732' / TVD 9514'

Injection Interval

9445' MD/ 9339' TVD feet to 19621' MD / 9517" TVD Perforated

(Perforated or Open Hole; indicate which)

Side 2

Tubing Size: 2.875" 6.5# L80 Lining Material: UNLINED

Type of Packer: 10K AS1-X Packer 5.5"

Packer Setting Depth: 8790' MD / 8766' 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: Avalon

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

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 6837'

UNDERLYING: 2nd Bone Spring FORMATION

Taco Cat 11H CBL

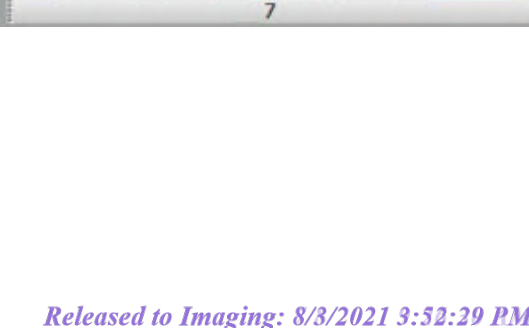
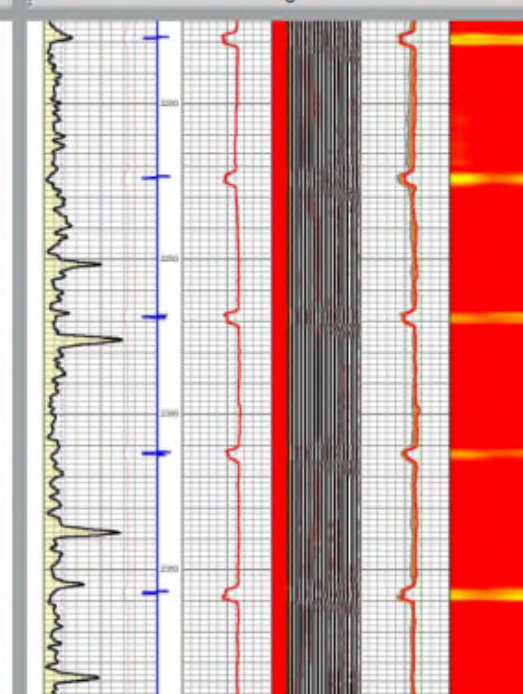
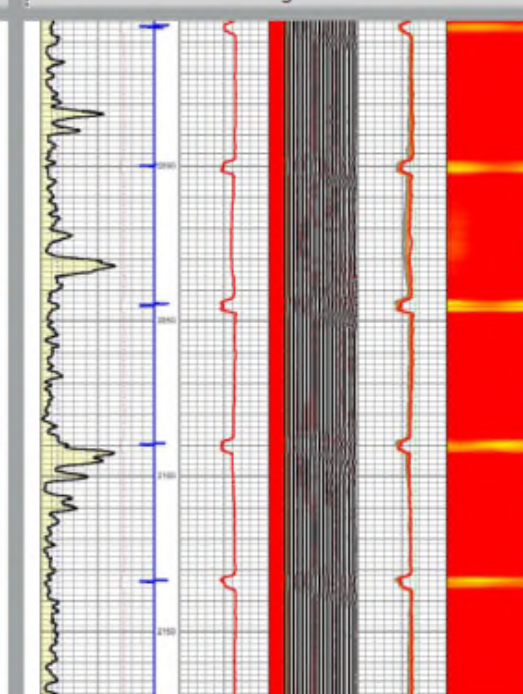
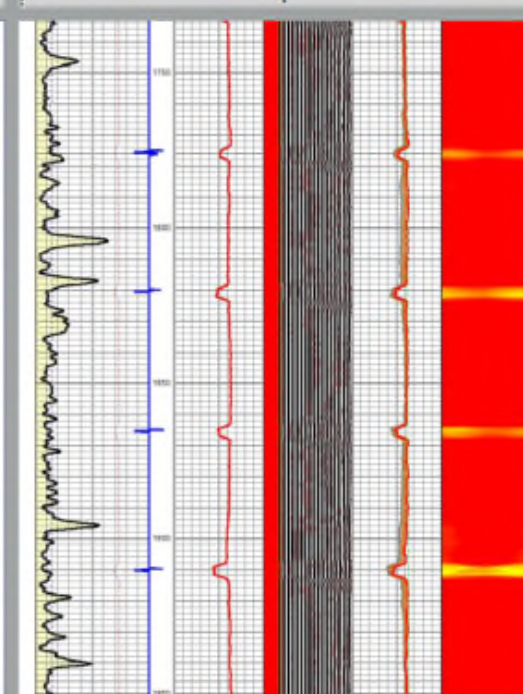
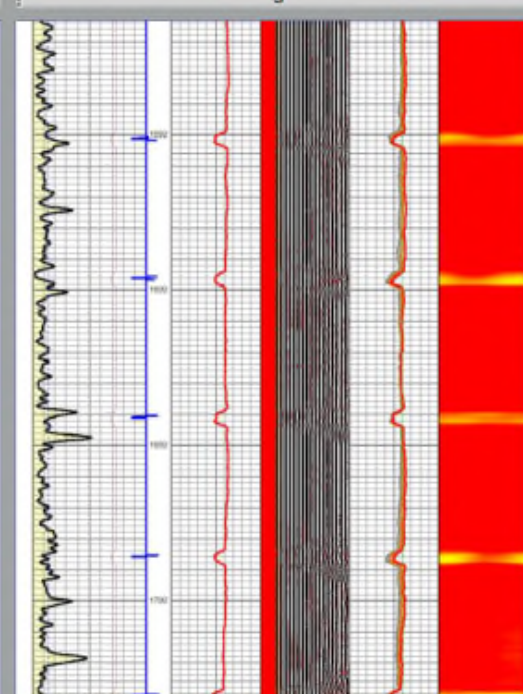
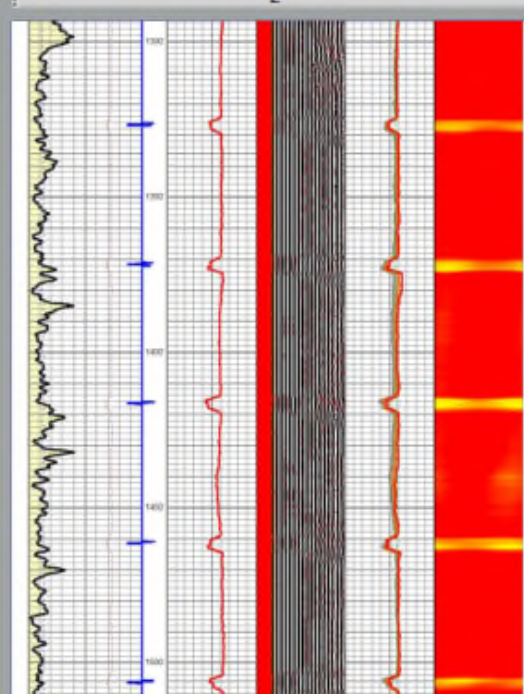
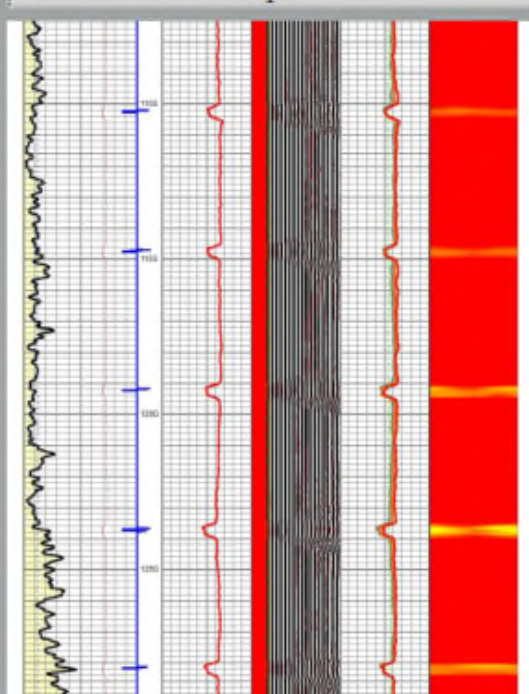
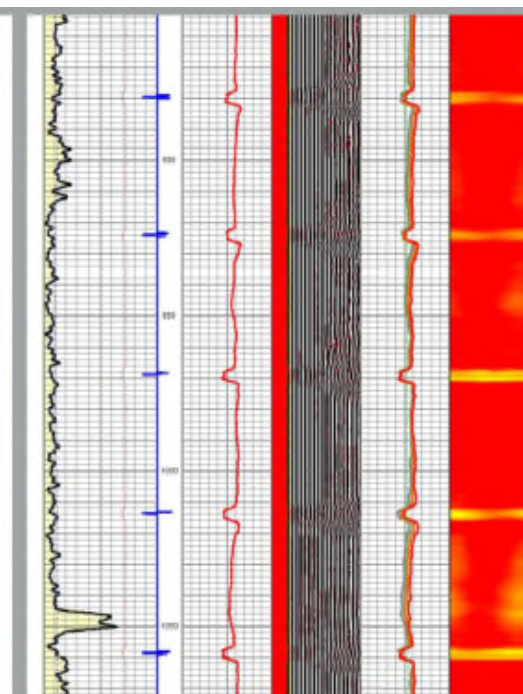
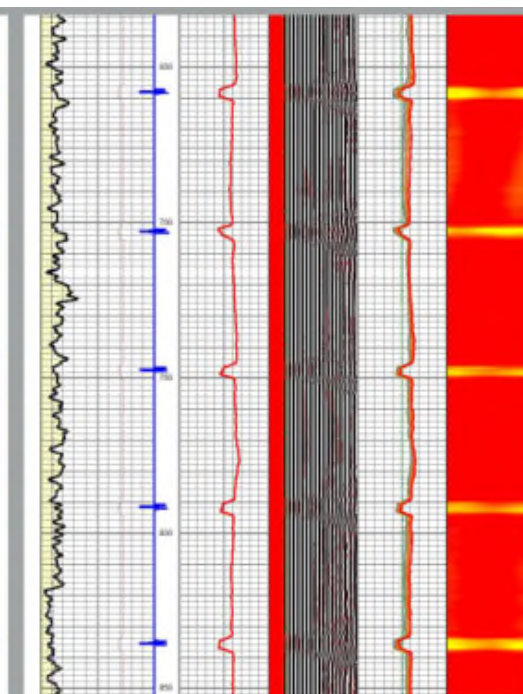
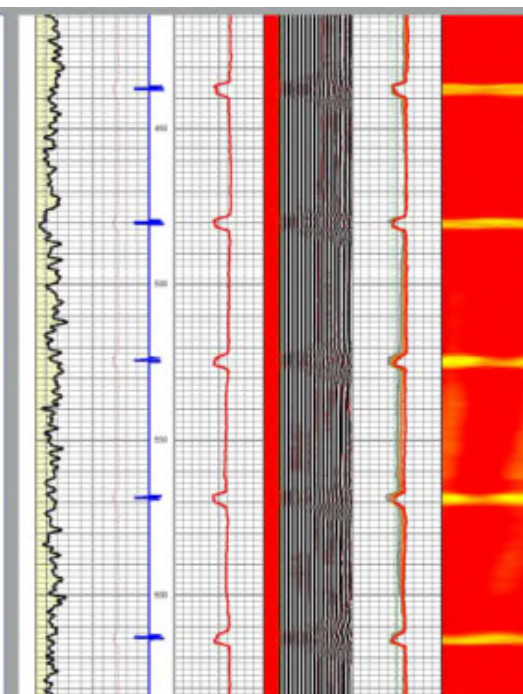
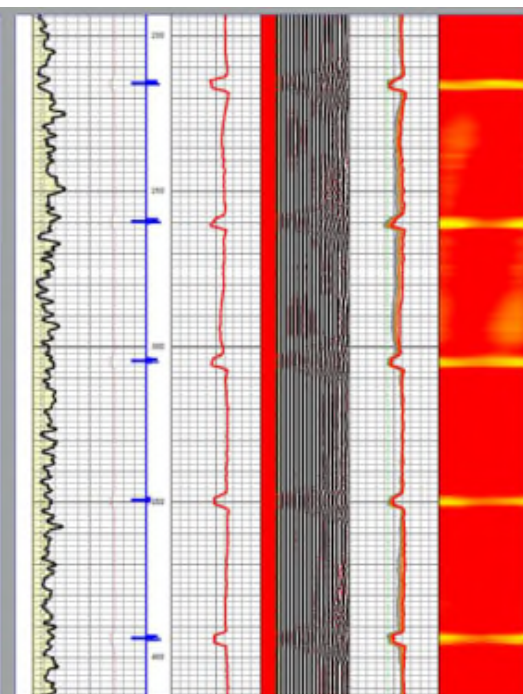
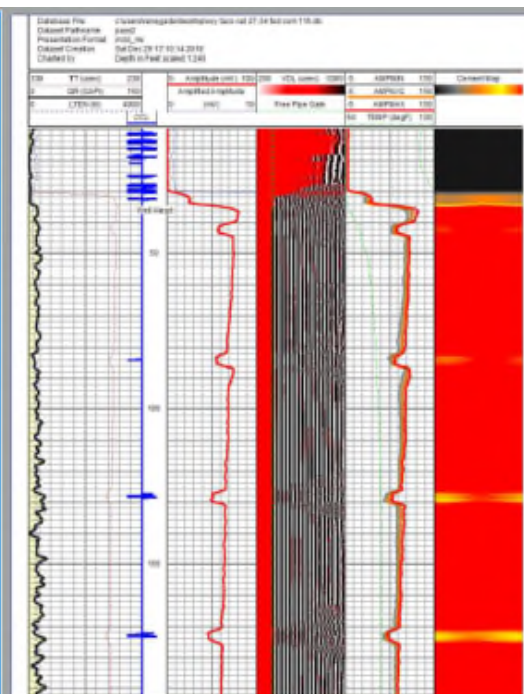
RENEGADE
LOGGING

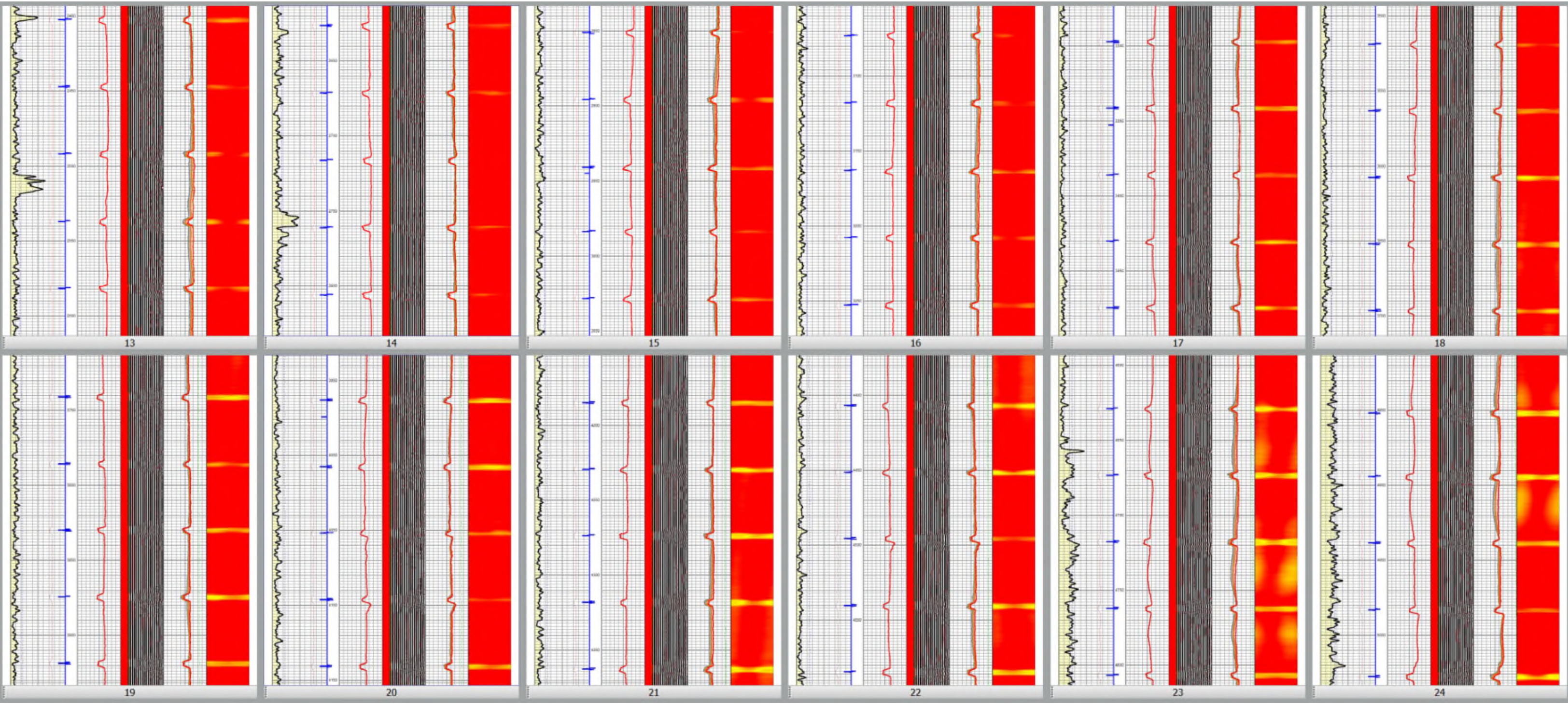
Radial Cement Bond
Gamma-Ray/DCI
Temperature Survey
Log

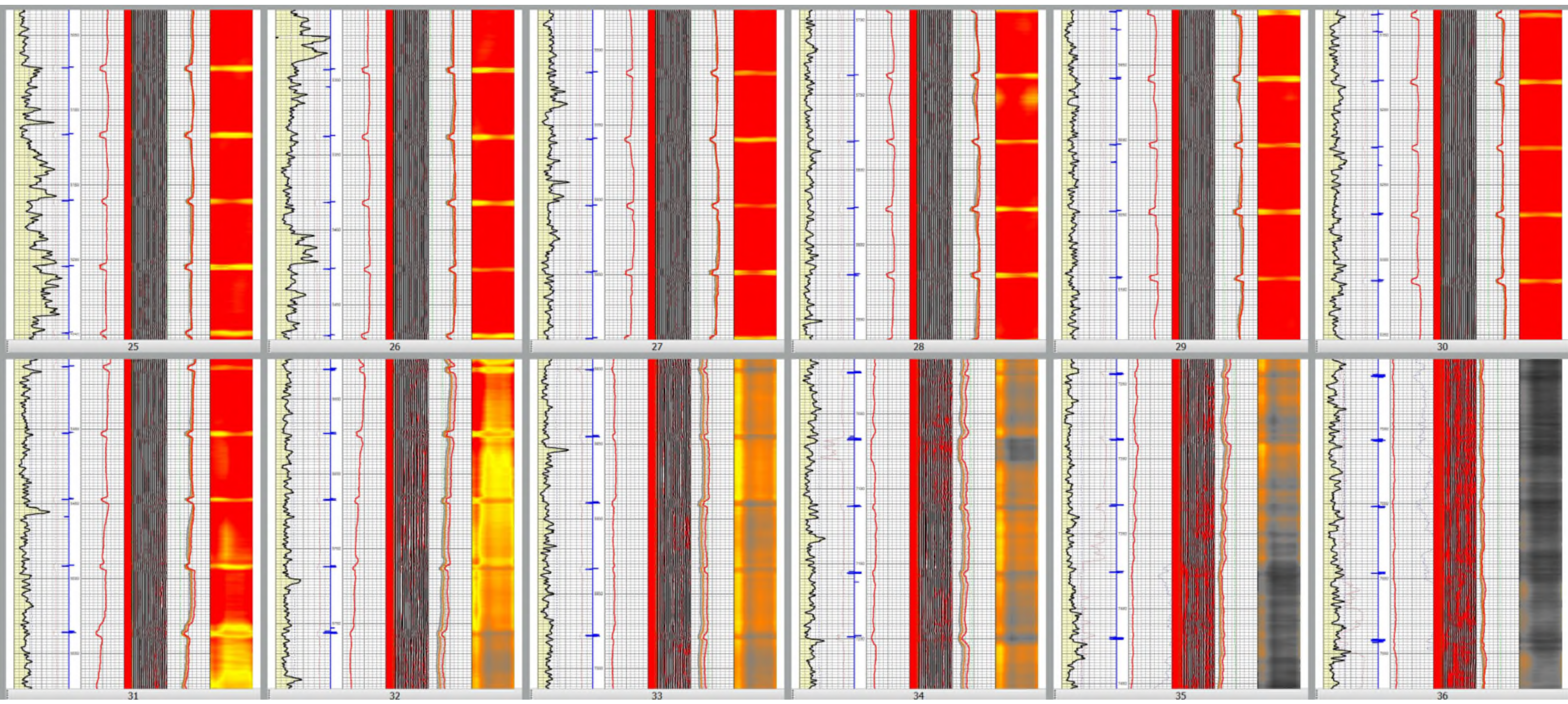
Company: Occidental Petroleum, Ltd.
Field: Taco Cat 27-24 Fm Cor 11H
Well: Taco Cat 27-24 Fm Cor 11H
Log: Main Pass (1000 PSI)

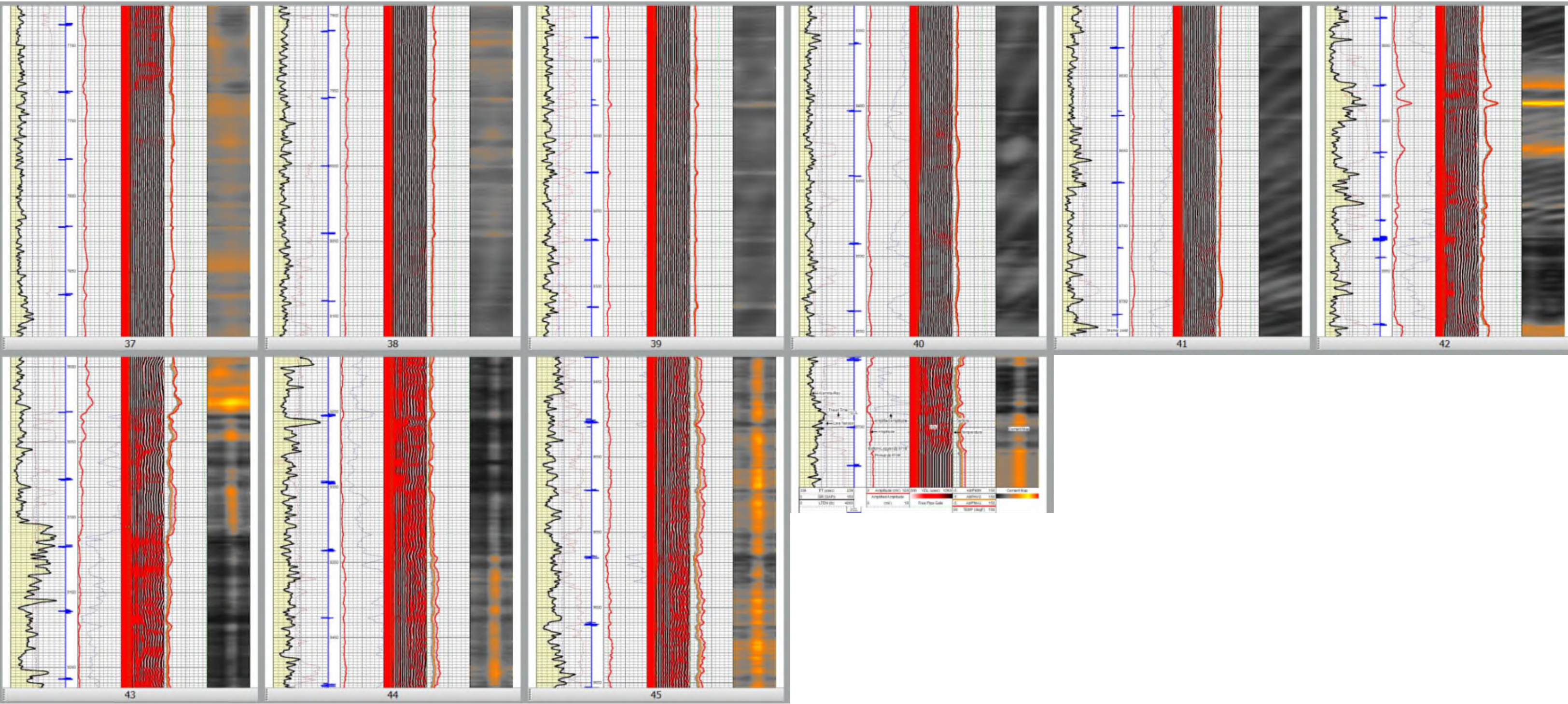
Log Date: 2021-07-27 10:00:00
Log Time: 10:00:00
Log Depth: 27-24 Fm Cor 11H
Log Interval: 1000 PSI

All Depths Logger Depths
Correlated to Marker Joint







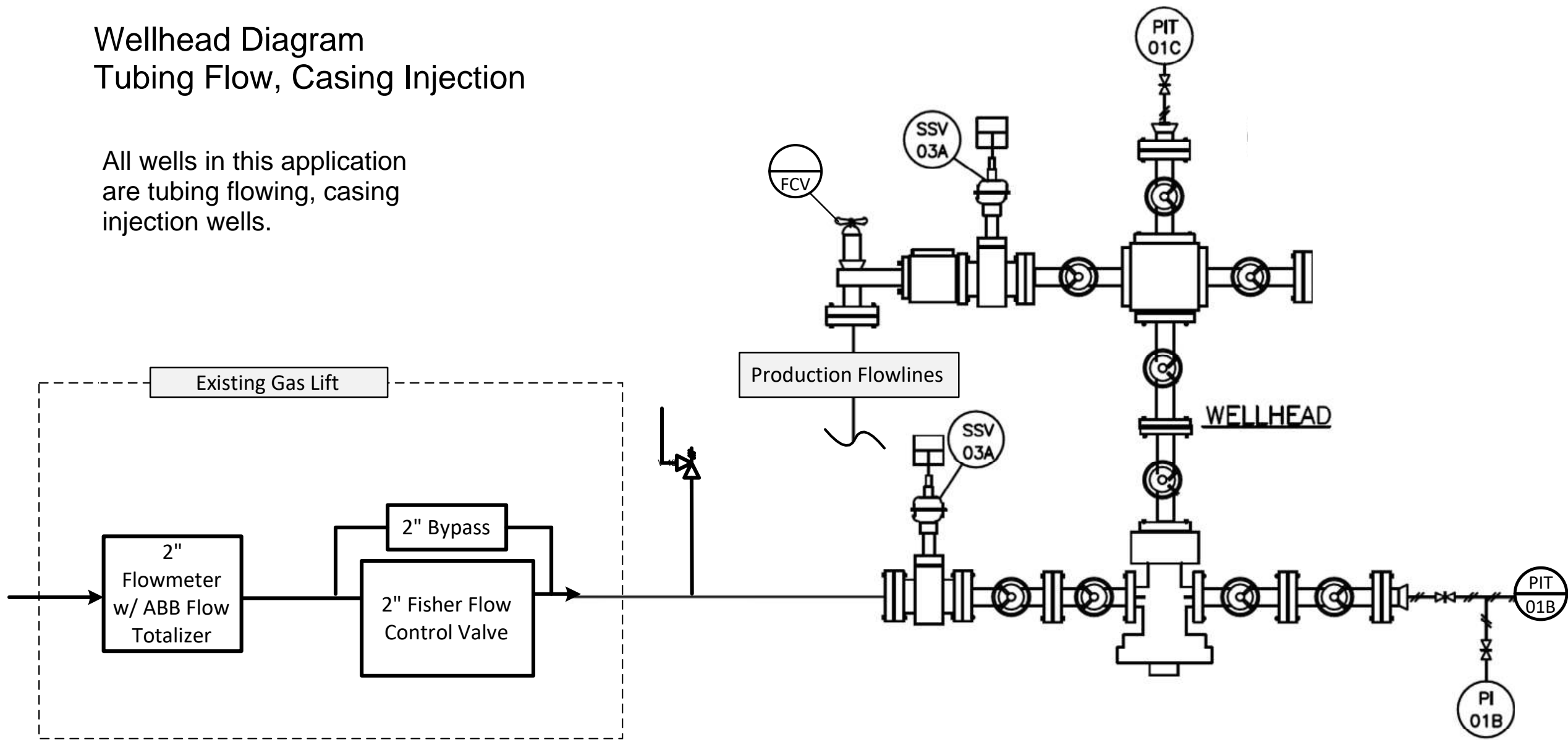


Max Allowable Surface Pressure (MASP) Table

	Column	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	Calculation									(1+6*7)/8						(1+12*13)/(12*14)
API10	Well Name	Proposed Max Allowable Surface Pressure (MASP) (PSI)	Current Average Surface Pressure (PSI)	Max Achievable Surface Pressure, Current Infrastructure (PSI)	Proposed Average Injection Rate (MMSCFD)	Proposed Max Injection Rate (MMSCFD)	Burst Calculation Depth (FT TVD)	Brine Pressure Gradient (PSI/FT)	Casing or Liner Burst (PSI)	MASP + Reservoir Brine Hydrostatic as a percentage of Casing or Liner Burst Pressure (%)	Top Perforation Depth (FT TVD)	MASP Gradient (PSI/FT)	Top Perforation Depth (FT TVD)	Gas Pressure Gradient (PSI/FT)	Formation Parting Pressure Gradient (PSI/FT)	MASP + Reservoir Gas Hydrostatic as a percentage of Formation Parting Pressure (%)
3002545956	Avogato 11H	1200	780	1200	1.8	2	9322	0.468	12640	44%	9322	0.129	9322	0.200	0.65	51%
3002545958	Avogato 13H	1200	540	1200	1.8	2	9396	0.468	12640	44%	9396	0.128	9396	0.200	0.65	50%
3002545959	Avogato 14H	1200	680	1200	1.8	2	9488	0.468	12640	45%	9488	0.126	9488	0.200	0.65	50%
3002544933	Taco Cat 11H	1200	670	1200	1.8	2	9339	0.468	12640	44%	9339	0.128	9339	0.200	0.65	51%

Wellhead Diagram Tubing Flow, Casing Injection

All wells in this application are tubing flowing, casing injection wells.



KEY	
SSV	– Safety Shutdown Valve
PI	– Pressure Indicator
PIT	– Pressure Indicating Transmitter
FCV	– Flow Control Valve

Mechanical Integrity Test (MIT) Summary Table

API10	Well Name	MIT #1				MIT #2		
		Date	Surface Pressure	Time	Notes	Date	Surface Pressure	Time
3002545956	Avogato 30 31 State Com #011H	11/3/2019	9800	30 min		12/5/2019	500	10 min
3002545958	Avogato 30 31 State Com #013H	10/24/2019	3000	15 min		12/2/2019	1000	15 min
3002545959	Avogato 30 31 State Com #014H	10/6/2019	1000	10 min	Only tested from surface to 2998' on the prod casing	11/20/2019	1000	unknown
3002544933	Taco Cat 27 34 Federal Com #011H	12/29/2018	1000	CBL		12/30/2018	9800	30 min

Gas Analysis and Operations

Avogato Gas Source Well

API10	Well Name
30-025-45928	AVOGATO 30 31 STATE COM 33H
30-025-45924	AVOGATO 30 31 STATE COM 21H
30-025-45925	AVOGATO 30 31 STATE COM 22H
30-025-45926	AVOGATO 30 31 STATE COM 23H
30-025-45927	AVOGATO 30 31 STATE COM 32H
30-025-45929	AVOGATO 30 31 STATE COM 31H
30-025-45930	AVOGATO 30 31 STATE COM 34H
30-025-45931	AVOGATO 30 31 STATE COM 35H
30-025-45956	AVOGATO 30 31 STATE COM 11H
30-025-45957	AVOGATO 30 31 STATE COM 12H
30-025-45958	AVOGATO 30 31 STATE COM 13H
30-025-45959	AVOGATO 30 31 STATE COM 14H
30-025-45960	AVOGATO 30 31 STATE COM 24H
30-025-45961	AVOGATO 30 31 STATE COM 25H
30-025-45923	AVOGATO 30 31 STATE COM 4H
30-025-45964	AVOGATO 30 31 STATE COM 74H

Taco Cat Gas Source Well

API10	Well Name
30-025-44933	TACO CAT 27 34 FEDERAL COM 11H
30-025-44934	TACO CAT 27 34 FEDERAL COM 21H
30-025-44935	TACO CAT 27 34 FEDERAL COM 31H

Tanks Gas Analysis Summary

- 2 separate gas systems in Tanks that sell gas to DCP.
 - Avogato
 - Taco Cat
- Avogato System
 - All producing wells flow to the Red Tank 19 Central Tank Battery (CTB).
 - Gas flows into the low-pressure gas pipeline to the Red Tank 19 Compressor Gas Lift Station (CGL).
- Taco Cat System
 - All producing wells flow to the Red Tank 27/28 Central Tank Battery (CTB).
 - Gas flows into the low-pressure gas pipeline to the Red Tank 27/28 Compressor Gas Lift Station (CGL).
- Gas analysis is provided for:
 - Red Tank 19 CGL
 - Gas Lift meter downstream of Red Tank 27/28 CGL
 - Avalon production



Certificate of Analysis

Number: 6030-21030247-006A

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

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

Mar. 22, 2021

Field:	Red Tank	Sampled By:	Javier Lazo
Station Name:	Red Tank 19 CGL Check A	Sample Of:	Gas Spot
Station Number:	15697C	Sample Date:	03/19/2021 08:30
Station Location:	OXY	Sample Conditions:	667 psia, @ 102 °F Ambient: 39 °F
Sample Point:	Meter Run	Effective Date:	03/19/2021 08:30
Formation:	Monthly	Method:	GPA-2261M
County:	Eddy	Cylinder No:	1111-002595
Type of Sample:	Spot-Cylinder	Instrument:	70104124 (Inficon GC-MicroFusion)
Heat Trace Used:	N/A	Last Inst. Cal.:	03/22/2021 0:00 AM
Sampling Method:	Fill and Purge	Analyzed:	03/22/2021 13:58:20 by EJ R
Sampling Company:	:SPL		

Analytical Data

Components	Un-normalized Mol %	Mol. %	Wt. %	GPM at 14.65 psia		
Hydrogen Sulfide	0.000	0.000	0.000		GPM TOTAL C2+	5.934
Nitrogen	2.130	2.124	2.604		GPM TOTAL C3+	3.095
Methane	72.845	72.626	50.986		GPM TOTAL iC5+	0.631
Carbon Dioxide	4.485	4.472	8.613			
Ethane	10.666	10.634	13.993	2.839		
Propane	5.909	5.891	11.368	1.620		
Iso-butane	0.756	0.754	1.918	0.246		
n-Butane	1.905	1.899	4.830	0.598		
Iso-pentane	0.445	0.444	1.402	0.162		
n-Pentane	0.466	0.465	1.468	0.168		
Hexanes Plus	0.693	0.691	2.818	0.301		
	<u>100.300</u>	<u>100.000</u>	<u>100.000</u>	<u>5.934</u>		

Calculated Physical Properties	Total	C6+
Relative Density Real Gas	0.7918	3.2176
Calculated Molecular Weight	22.85	93.19
Compressibility Factor	0.9961	

GPA 2172 Calculation:

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

Real Gas Dry BTU	1229	5113
Water Sat. Gas Base BTU	1208	5024
Ideal, Gross HV - Dry at 14.65 psia	1224.4	5113.2
Ideal, Gross HV - Wet	1203.0	5023.7
Net BTU Dry Gas - real gas	1116	
Net BTU Wet Gas - real gas	1097	

Comments: H2S Field Content 2.5 ppm
 Mcf/day 7126

Hydrocarbon Laboratory Manager

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

Gas Lift Meter Downstream of Red Tank 27/28 CGL



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

Company: OXY USA INC
Field/Location : NMSW
Station Name : TACO CCT 27-34FC 11GL
Station Number : 16231I
Sample Date: 3/12/21 2:37 PM
Analysis Date: 3/15/21 7:10:09 AM
Instrument: VARIAN CP 490 GC
Calibration/Verification Date: 3/15/2021
Heat Trace used: YES

Work Order 4000248705
Sampled by: VOLUMETRICS/JA
Sample Type : SPOT-CYLINDER
Sample Temperature (F): 84
Sample Pressure (PSIG): 1243
Flow rate (MCF/Day): 499.5
Ambient Temperature (F): 79
Sampling method: FILL & EMPTY
Cylinder Number: 1137

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	2.1539	2.2001			
Methane	71.2480	72.7773			
Carbon Dioxide	1.4295	1.4602			
Ethane	12.5308	12.7998	3.417	3.436	3.505
Propane	6.4693	6.6082	1.817	1.827	1.864
Isobutane	0.8184	0.8360	0.273	0.275	0.280
N-butane	1.9947	2.0375	0.641	0.645	0.658
Isopentane	0.3908	0.3992	0.146	0.147	0.149
N-Pentane	0.4155	0.4244	0.154	0.154	0.157
Hexanes Plus	0.4477	0.4573	0.199	0.200	0.204
Total	97.8986	100.0000			

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

Physical Properties (Calculated)	14.650 psia	14.730 psia	15.025 psia
Total GPM Ethane+	6.647	6.684	6.817
Total GPM Iso-Pentane+	0.499	0.501	0.511
Compressibility (Z)	0.9961	0.9961	0.9960
Specific Gravity (Air=1) @ 60 °F	0.7757	0.7757	0.7758
Molecular Weight	22.387	22.387	22.387
Gross Heating Value	14.650 psia	14.730 psia	15.025 psia
Dry, Real (BTU/Ft ³)	1279.0	1286.0	1311.8
Wet, Real (BTU/Ft ³)	1256.7	1263.6	1289.0
Dry, Ideal (BTU/Ft ³)	1273.9	1280.9	1306.5
Wet, Ideal (BTU/Ft ³)	1251.8	1258.6	1283.8

Temperature base 60 °F

Comment:

Verified by

Mostaq Ahammad
 Petroleum Chemist

Approved by

Deann Friend
 Deann Friend
 Laboratory Manager



Certificate of Analysis

Number: 6030-20100053-001A

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

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

Oct. 09, 2020

Field: Red Tank
 Station Name: Avogadro 30-31 State Com 11H
 Station Number: 15601T
 Sample Point: N/A
 Meter Number: 30-025-45956
 County: Lea
 Type of Sample: Spot-Cylinder
 Heat Trace Used: N/A
 Sampling Method: Fill and Purge
 Sampling Company: OXY

Sampled By: Chandler Montgomery
 Sample Of: Gas Spot
 Sample Date: 10/08/2020 11:50
 Sample Conditions: 95.7 psig, @ 85.4 °F Ambient: 81 °F
 Effective Date: 10/08/2020 11:50
 Method: GPA-2261M
 Cylinder No: 1111-002274
 Instrument: 70104251 (Inficon GC-MicroFusion)
 Last Inst. Cal.: 10/05/2020 0:00 AM
 Analyzed: 10/09/2020 10:24:10 by KNF

Analytical Data

Components	Un-normalized Mol %	Mol. %	Wt. %	GPM at 14.65 psia		
Hydrogen Sulfide	0.000	0.001	0.001		GPM TOTAL C2+	4.668
Nitrogen	4.524	4.542	5.489		GPM TOTAL C3+	2.378
Methane	70.019	70.304	48.658		GPM TOTAL iC5+	0.515
Carbon Dioxide	8.747	8.782	16.674			
Ethane	8.548	8.583	11.134	2.290		
Propane	4.557	4.575	8.703	1.258		
Iso-butane	0.554	0.556	1.394	0.182		
n-Butane	1.339	1.344	3.370	0.423		
Iso-pentane	0.383	0.385	1.198	0.140		
n-Pentane	0.386	0.388	1.208	0.140		
Hexanes Plus	0.538	0.540	2.171	0.235		
	99.595	100.000	100.000	4.668		

Calculated Physical Properties

	Total	C6+
Relative Density Real Gas	0.8029	3.2176
Calculated Molecular Weight	23.18	93.19
Compressibility Factor	0.9965	

GPA 2172 Calculation:

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

Real Gas Dry BTU	1098	5113
Water Sat. Gas Base BTU	1079	5024
Ideal, Gross HV - Dry at 14.65 psia	1094.2	5113.2
Ideal, Gross HV - Wet	1075.1	5023.7
Net BTU Dry Gas - real gas	996	
Net BTU Wet Gas - real gas	979	

Comments: H2S Field Content 9 ppm
 Mcf/day 3614

Jesus Escobedo

Carly Peterson

Hydrocarbon Laboratory Manager

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

Corrosion Prevention Plan

Existing Corrosion Prevention Plan

- Produced gas is processed through a gas dehydration unit to remove water.
- Corrosion inhibitor is added to the system downstream of the gas dehydration unit.
- Fluid samples are taken regularly and checked for Fe, Mn, and residual corrosion inhibitor in produced fluids.
- Continuously monitor and adjust the chemical treatment over the life of the well.

Oxy will continue the existing corrosion prevention plan in place for the gas lift system due to the similar nature of gas storage operations.

- Fluid samples will be taken prior to injection to establish a baseline for analysis.
- After a storage event, fluid samples will be taken to check for Fe, Mn, and residual corrosion inhibitor in the produced fluids.
- Continuously monitor and adjust the chemical treatment over the life of the project.



NM GAS STORAGE OPERATIONAL PLAN

Operational Plan

WELLSITE CLGC

Oxy USA Inc. (Oxy) will monitor the following items on each Closed Loop Gas Capture (CLGC) well via SCADA system:

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

CENTRAL TANK BATTERY (CTB)

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

- Production Rates
 - Oil
 - Gas
 - Water
- Safety devices
 - Flares at CTBs
 - Injection pressure kills on production/gas storage stream for injection
 - Emergency Shutdown (ESD) of wells that are local and remote for automatic shut downs to safe the system
 - Control of injection rate and pressures via control valve at each well injection stream

CENTRAL GAS LIFT (CGL) COMPRESSOR(S)

Oxy will monitor the following items on each Central Gas Lift (CGL) Compressor Station via SCADA system:

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

remote monitoring of valve position; but still monitored in some sense of the pressure trend for the station)

SUPERVISORY CONTROL AND DATA ACQUISITION (SCADA)

Oxy SCADA system consists of PLCs at each CTB, Wellsite, and Central Gas Lift compressor or station.

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

ENVIRONMENTAL/SPILL RESPONSE

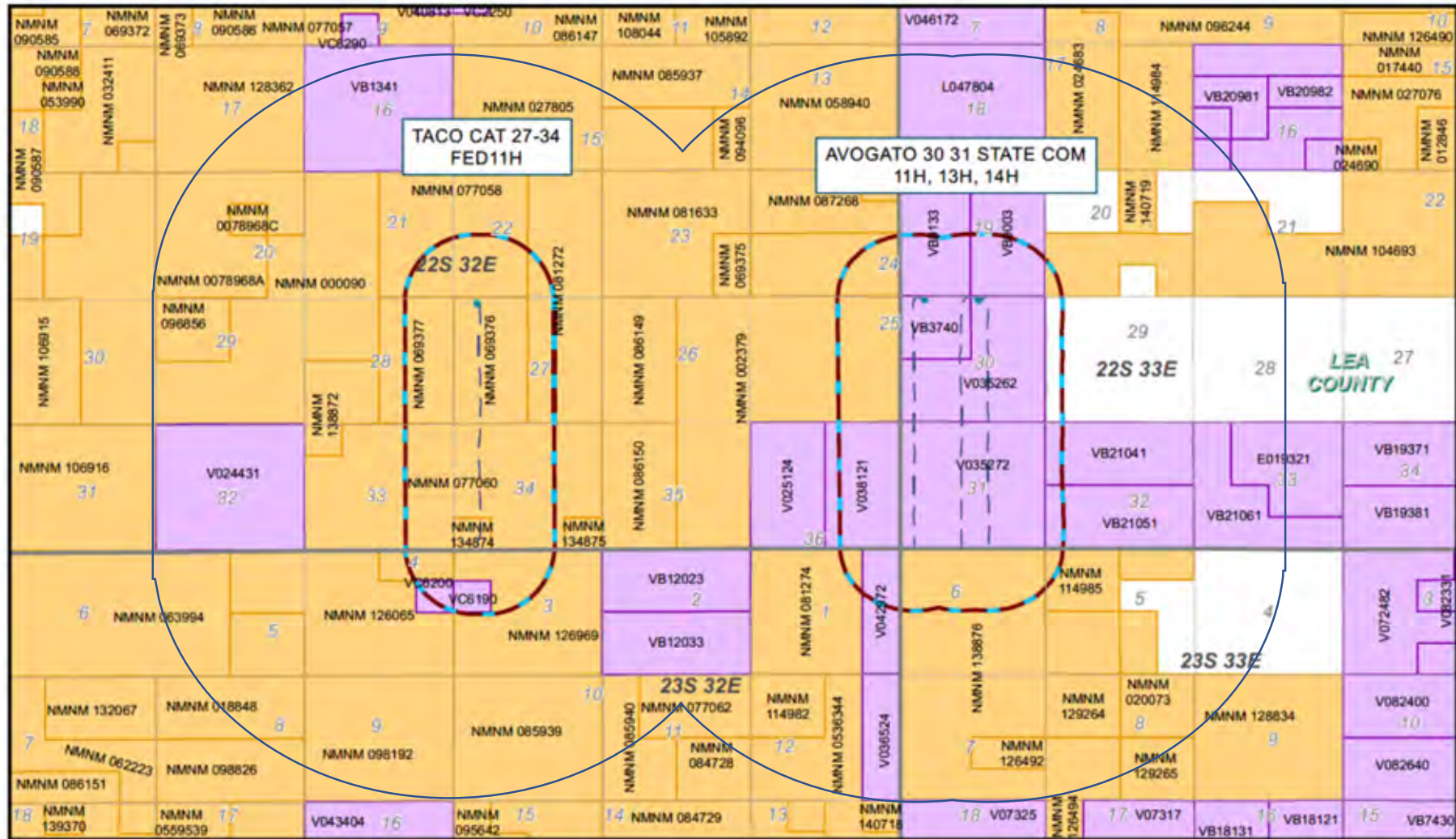
Oxy will report and track any spill recordable or non-recordable via our CDR system

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

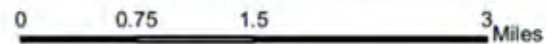
Area of Review



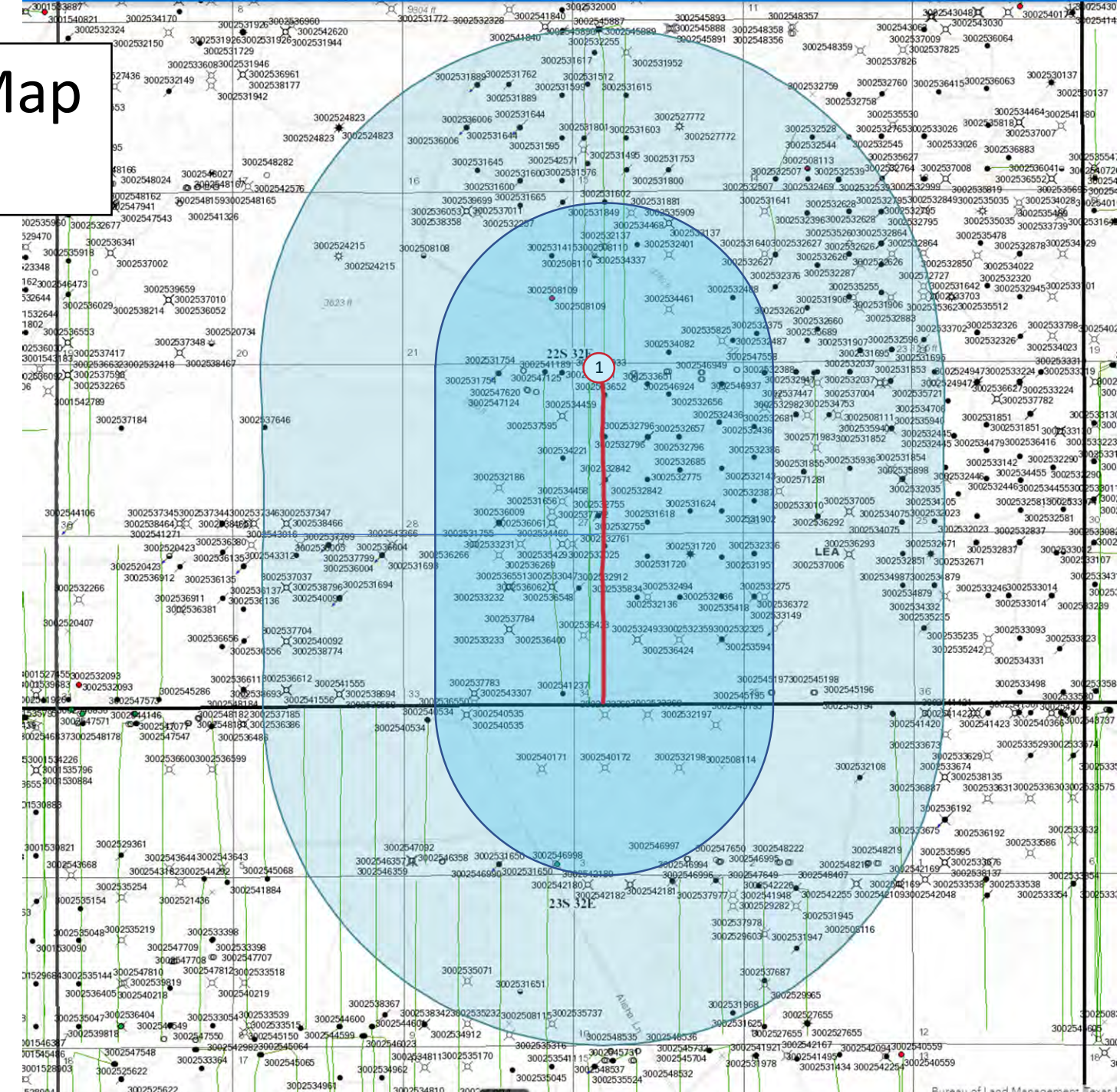
NENM GAS LIFT NETWORK LEA COUNTY, NEW MEXICO



- | | |
|-----------------------|--------------------------|
| County | <u>Lease Owner Type:</u> |
| 1/2 mile AOR | Federal |
| Surface Hole Location | State |
| Trajectory | 2 Mile Outline |



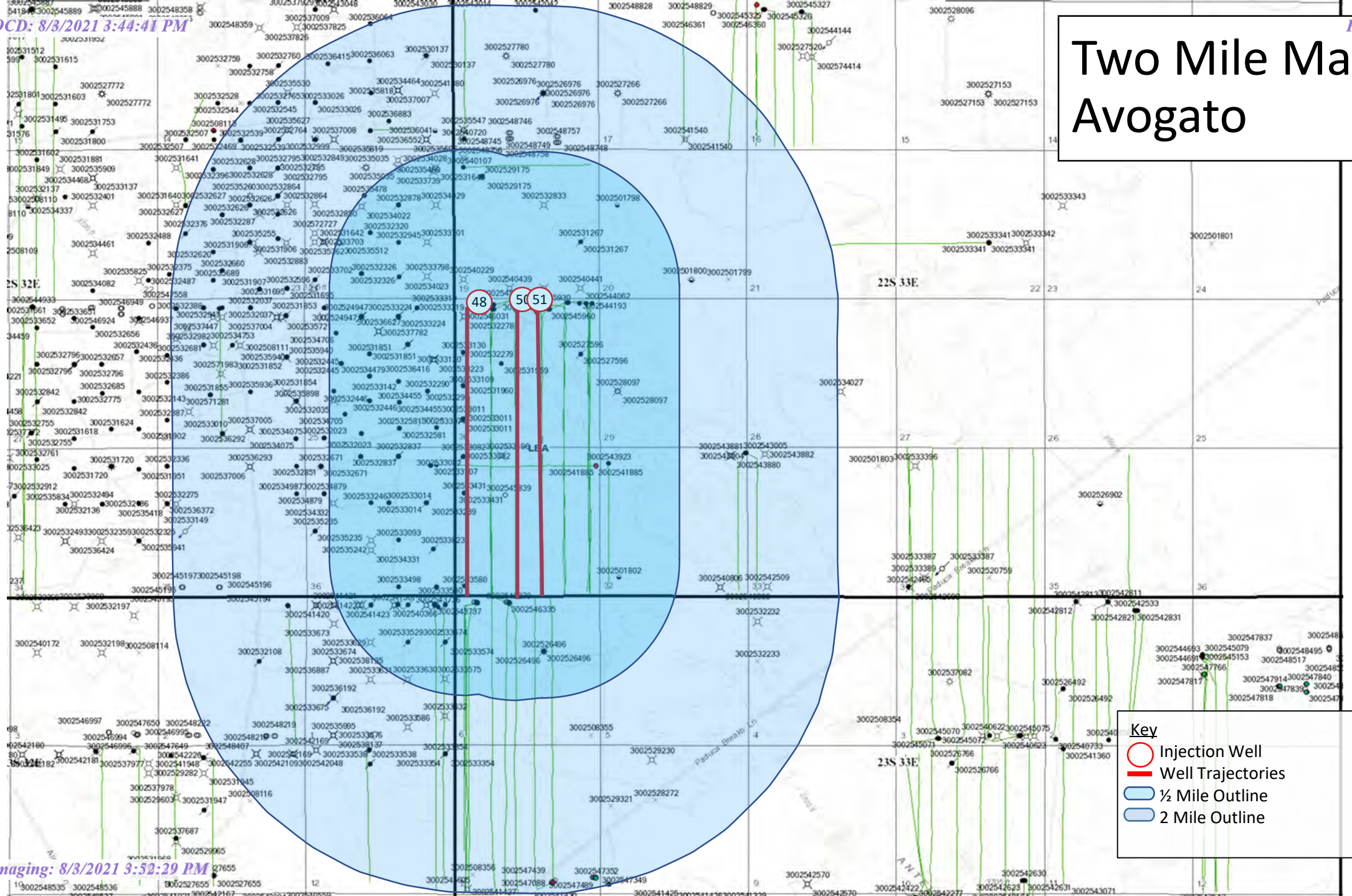
Two Mile Map Taco Cat



Key

- Injection Well
- Well Trajectories
- 1/2 mile Outline
- 2 Mile Outline

Two Mile Map Avogato

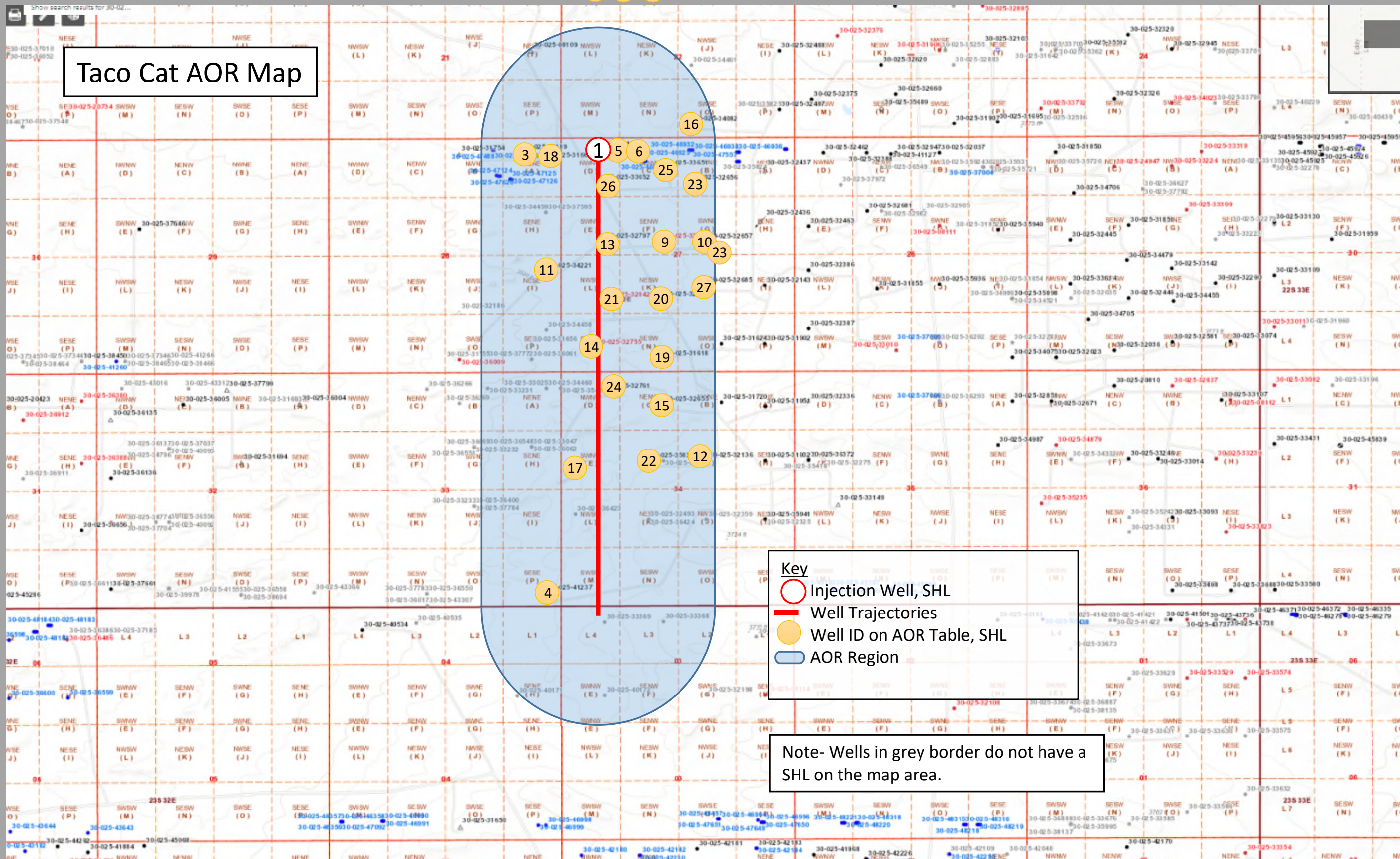


Key

- Injection Well
- Well Trajectories
- 1/2 Mile Outline
- 2 Mile Outline

2 7 8

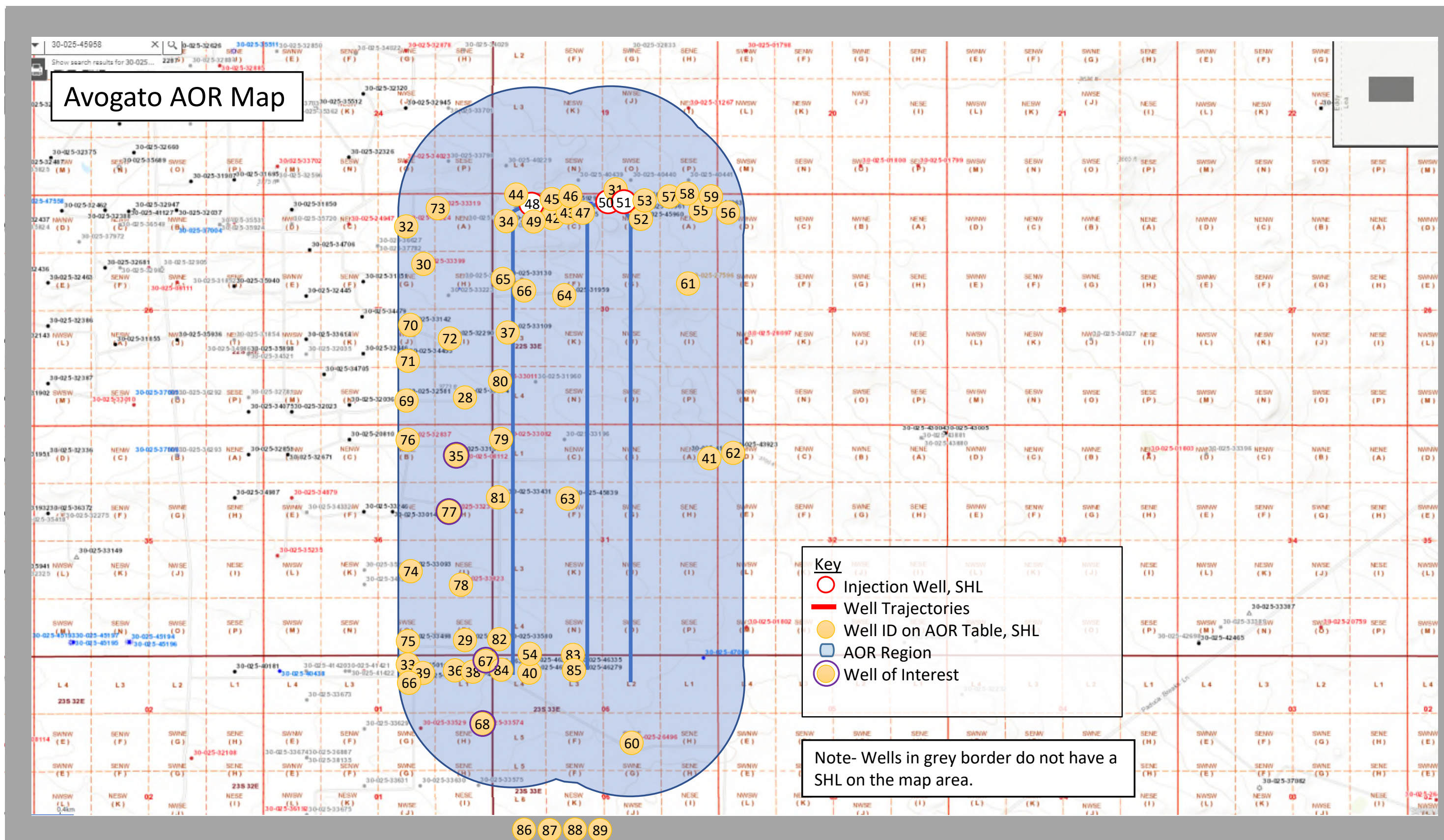
Taco Cat AOR Map



Key

- Injection Well, SHL
- Well Trajectories
- Well ID on AOR Table, SHL
- ▭ AOR Region

Note- Wells in grey border do not have a SHL on the map area.



Well ID	API NUMBER	Current Operator	LEASE NAME	WELL NUMBER	Well Type	Status	Footages			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 WELLFILE		HOW MEASUR ED	Current Completion [ft]	Comment	Current Producing Pool
							N/S	N/S	E/W												[ft]	[ft]				
1	30-025-44933	OXY USA INC	TACO CAT 27 34 FEDERAL COM	011H	Oil	Active	260	N	855	W	D	27 22S	32E	7/29/2018	9514	19732	17.5	13.375	867	800	0	Circ	9445-19621		[51683] RED TANK; BONE SPRING	
2	30-025-45892	MARATHON OIL PERMIAN LLC	FRIZZLE FRY 15 WXY FEDERAL COM	007H	Oil	Active	274	N	852	W	D	15 22S	32E	8/13/2019	12111	22217	17.5	13.375	1074	920	0	Circ	12320-22126	Top of 5.5" liner 11794'	[98258] WC-025 S223203A; LWR WOLFCAMP (GAS)	
3	30-025-41189	OXY USA INC	RED TANK 28 FEDERAL	005H	Oil	Active	295	N	880	E	A	28 22S	32E	9/25/2014	8418	13270	14.75	1.75	927	690	0	Circ	8602-13122		[51689] RED TANK; DELAWARE, WEST	
4	30-025-41237	OXY USA INC	RED TANK 33 FEDERAL	001H	Oil	Active	330	S	330	E	P	33 22S	32E	9/23/2014	8431	13014	14.75	11.75	1129	840	0	Circ	8690-12788		[51689] RED TANK; DELAWARE, WEST	
5	30-025-44934	OXY USA INC	TACO CAT 27 34 FEDERAL COM	021H	Oil	Active	260	N	785	W	D	27 22S	32E	7/27/2018	10849	20904	17.5	13.375	858	1100	0	Circ	10699-20791		[51683] RED TANK; BONE SPRING	
6	30-025-44935	OXY USA INC	TACO CAT 27 34 FEDERAL COM	031H	Oil	Active	260	N	820	W	D	27 22S	32E	7/25/2018	12205	22168	17.5	13.375	825	1140	0	Circ	11982-22029		[98286] WC-025 G-08 S223227D; UPPER WOLFCAMP	
7	30-025-45887	MARATHON OIL PERMIAN LLC	FRIZZLE FRY 15 TB FEDERAL COM	001H	Oil	Active	273	N	792	W	D	15 22S	32E	8/15/2019	11967	21990	17.5	13.375	1061	940	0	Circ	12024-21908		[51683] RED TANK; BONE SPRING	
8	30-025-45890	MARATHON OIL PERMIAN LLC	FRIZZLE FRY 15 WA FEDERAL COM	002H	Oil	Active	273	N	762	W	D	15 22S	32E	8/16/2019	12115	22467	17.5	13.375	1086	940	0	Circ	12606-22334	Top of 4.5" liner 11762'	[98166] WC-025 G-09 S233216K; UPR WOLFCAMP	
9	30-025-32796	OXY USA INC	FEDERAL 27	004	Oil	PA	2310	N	2310	W	F	27 22S	32E	8/9/1996	8730	8730	14.75	10.75	805	780	0	Circ	N/A		N/A	
10	30-025-32657	OXY USA INC	PRIZE FEDERAL	007	Oil	Active	2310	N	1980	E	G	27 22S	32E	7/6/1996	8715	8715	14.75	10.75	830	780	0	Circ	8364-8416		[51689] RED TANK; DELAWARE, WEST	
11	30-025-34221	OXY USA INC	RED TANK 28 FEDERAL	006	Oil	Active	2310	S	330	E	I	28 22S	32E	8/23/1998	8700	8700	14.75	10.75	815	750	0	Circ	8300-8540		[51689] RED TANK; DELAWARE, WEST	
12	30-025-32136	OXY USA INC	RED TANK 34 FEDERAL	004	Oil	Active	1980	N	1980	E	G	34 22S	32E	1/21/1994	8850	8850	17.5	13.375	764	1050	0	Circ	4800-4820; 8414-8442		[51689] RED TANK; DELAWARE, WEST	
13	30-025-32797	OXY USA INC	FEDERAL 27	005	Oil	Active	2310	N	990	W	E	27 22S	32E	11/11/1996	8714	8714	14.75	10.75	808	700	0	Circ	7188-7204; 7299-7310; 7638-7690; 8356-8378		[51689] RED TANK; DELAWARE, WEST	
14	30-025-32755	OXY USA INC	FEDERAL 27	008	Oil	PA	580	S	790	W	M	27 22S	32E	6/9/1995	8732	8732	14.75	10.75	822	800	0	Circ	N/A		N/A	
15	30-025-32655	OXY USA INC	RED TANK 34 FEDERAL	014	Oil	Active	710	N	2310	W	C	34 22S	32E	9/21/1994	8718	8718	17.5	13.375	800	950	0	Circ	8378-8412		[51689] RED TANK; DELAWARE, WEST	
16	30-025-34082	OXY USA INC	PRIZE FEDERAL	011	Oil	Active	330	S	2310	E	O	22 22S	32E	8/19/1997	8780	8780	14.75	10.75	802	800	0	Circ	7000-7168; 8360-8440		[51689] RED TANK; DELAWARE, WEST	
17	30-025-32912	OXY USA INC	RED TANK 34 FEDERAL	015	Oil	PA	1700	N	180	W	E	34 22S	32E	6/24/1995	8742	8742	14.75	10.75	818	700	0	Circ	N/A		N/A	
18	30-025-31661	OXY USA INC	RED TANK 28 FEDERAL	001	Oil	Active	330	N	330	E	A	28 22S	32E	10/20/1992	8740	8740	17.5	13.375	817	850	0	Circ	7004-7218; 8373-8409		[51689] RED TANK; DELAWARE, WEST	
19	30-025-31618	OXY USA INC	FEDERAL 27	001	Oil	Active	330	S	2310	W	N	27 22S	32E	6/18/1992	8850	8850	17.5	13.375	850	1060	0	Circ	8330-8391		[51689] RED TANK; DELAWARE, WEST	
20	30-025-32775	OXY USA INC	FEDERAL 27	007	Oil	Active	1650	S	2310	W	K	27 22S	32E	7/8/1995	8734	8734	14.75	10.75	805	700	0	Circ	8370-8470		[51689] RED TANK; DELAWARE, WEST	
21	30-025-32842	OXY USA INC	FEDERAL 27	006	Oil	PA	1650	S	990	W	L	27 22S	32E	10/11/1995	8700	8700	14.75	10.75	825	600	0	Circ	N/A		N/A	
22	30-025-35834	OXY USA INC	RED TANK 34 FEDERAL	012	Oil	Active	1980	N	1980	W	F	34 22S	32E	4/20/2002	8795	8795	14.75	10.75	1025	800	0	Circ	8420-8435		[51689] RED TANK; DELAWARE, WEST	
23	30-025-32656	OXY USA INC	PRIZE FEDERAL	006	Oil	Active	990	N	2310	E	B	27 22S	32E	1/27/1997	8756	8756	14.75	10.75	830	800	0	Circ	8346-8360		[51689] RED TANK; DELAWARE, WEST	
24	30-025-32761	OXY USA INC	RED TANK 34 FEDERAL	013	Oil	Active	410	N	990	W	D	34 22S	32E	12/8/1994	8722	8722	17.5	13.375	812	950	0	Circ	8366-8392		[51689] RED TANK; DELAWARE, WEST	
25	30-025-33651	OXY USA INC	FEDERAL 27	003	Oil	Active	660	N	2310	W	C	27 22S	32E	12/27/1997	8800	8800	14.75	10.75	804	800	0	Circ	6987-7150		[51689] RED TANK; DELAWARE, WEST	

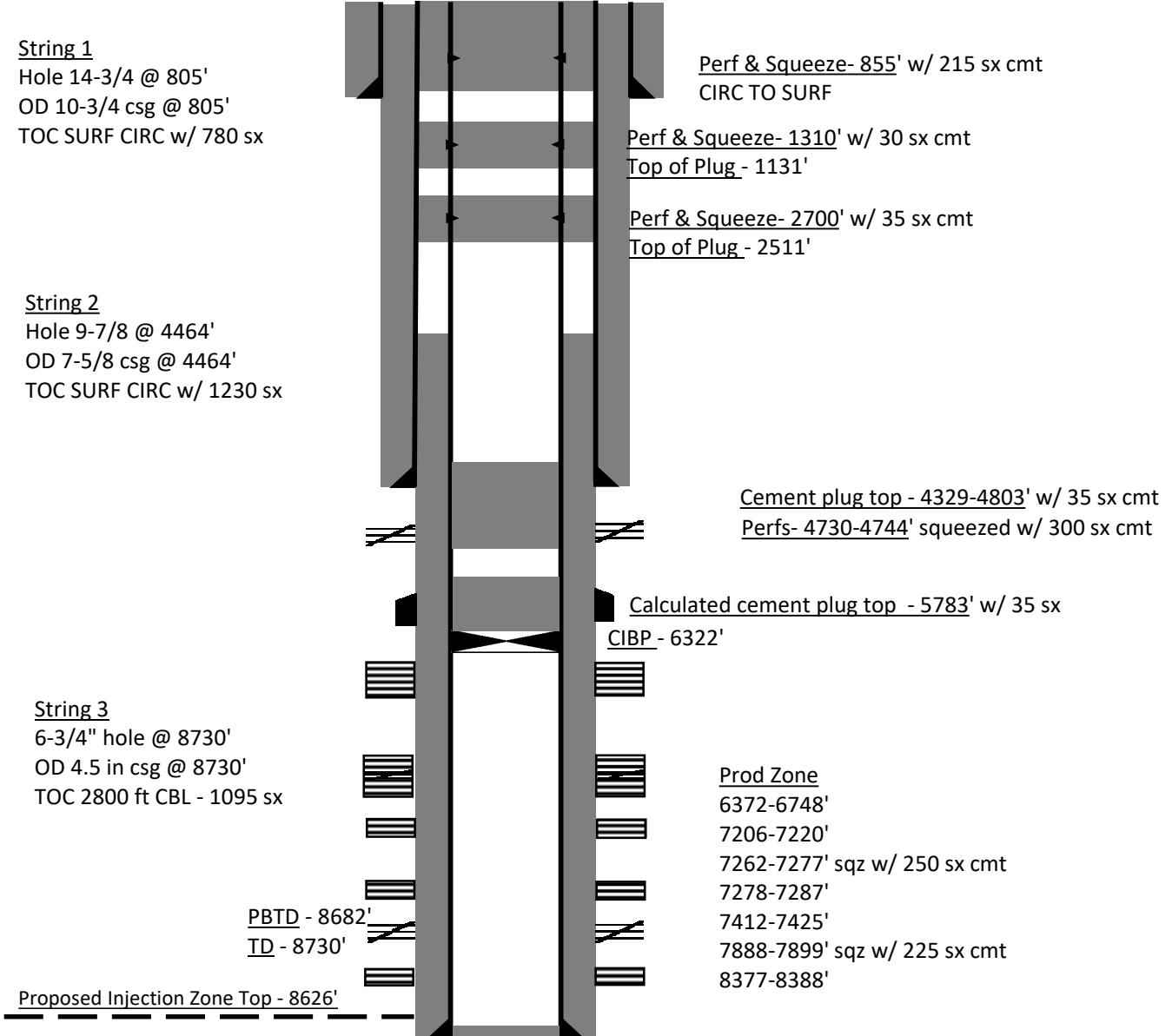
52	30-025-45960	OXY USA INC	AVOGATO 30 31 STATE COM	024H	Oil	Active	420 N	1820 E	B	30 22S	33E	7/16/2019	10961	21078	8.5 17.5 12.25 8.5	5.5 13.375 9.625 5.5	19865 1054 6425 21051	2135 1340 1165 2485	6435 CBL 0 CIRC 0 CIRC 3170 CALC	10610'-20985'	[51687] RED TANK; BONE SPRING, EAST	
53	30-025-45961	OXY USA INC	AVOGATO 30 31 STATE COM	025H	Oil	Active	420 N	1785 E	B	30 22S	33E	7/18/2019	10785	20988	8.5 17.5 12.25 8.5	5.5 13.375 9.625 5.5	21051 1052 6435 20988	2485 1340 1165 2470	3170 CALC 0 CIRC 0 CIRC 3316 CALC	10572'-20896'	[51687] RED TANK; BONE SPRING, EAST	
54	30-025-46372	MATADOR PRODUCTION COMPANY	RODNEY ROBINSON FEDERAL	201H	Oil	Active	240 N	797 W	D	6 23S	33E	10/1/2019	12436	22484	8.75 17.5 12.25 8.75 6.75	7.625 13.375 9.625 7.625 5.5	12531 1335 5035 12531 22484	920 1345 1650 920 1435	2700 CALC 0 CIRC 0 CIRC 0 CIRC 0 CIRC	12324'-22368'	[98177] WC-025 G-09 S223332A; UPR WOLFCAMP	
55	30-025-44161	OXY USA INC	RED TANK 30 31 STATE COM	024Y	Oil	Active	200 N	270 E	A	30 22S	33E	11/21/2017	10863	20600	8.5 17.5 12.25 8.5	5.5 13.375 9.625 5.5	20590 1090 6867 20590	1435 1165 2385 2260	1865 CALC 0 CIRC 0 CIRC 0 CIRC	11300'-20364'	[51687] RED TANK; BONE SPRING, EAST	
56	30-025-44193	OXY USA INC	RED TANK 30 31 STATE COM	014H	Oil	Active	200 N	710 E	A	30 22S	33E	8/1/2018	9407	19687	8.5 17.5 12.25 8.5	5.5 13.375 9.625 5.5	19681 1072 6776 19681	2012 1450 3125 2012	0 CIRC 0 CIRC 0 CIRC 0 CIRC	9694'-19546'	[51687] RED TANK; BONE SPRING, EAST	
57	30-025-45923	OXY USA INC	AVOGATO 30 31 STATE COM	004H	Oil	Active	160 N	1120 E	A	30 22S	33E	9/14/2019	10154	20295	6.75 17.5 12.25 6.75	5.5 13.375 7.625 5.5	20625 1037 9534 922	922 1340 3594 9029 CALC	0 CIRC 0 CIRC 0 CIRC 0 CIRC	10357'-20138'	[51687] RED TANK; BONE SPRING, EAST	
58	30-025-45964	OXY USA INC	AVOGATO 30 31 STATE COM	074H	Oil	Active	160 N	1155 E	A	30 22S	33E	9/15/2019	11405	21667	6.75 17.5 12.25 8.5 6.75	5.5 13.375 9.625 7.625 5.5	21610 1058 7343 10562 21610	858 1340 1447 472 858	10446 CALC 0 CIRC 0 CIRC 6834 CALC 10446 CALC	11772'-21527'	[51687] RED TANK; BONE SPRING, EAST	
59	30-025-44063	OXY USA INC	RED TANK 30 31 STATE COM	034H	Oil	Active	200 N	470 E	A	30 22S	33E	11/5/2017	11996	21675	8.5 17.5 12.25 8.5	5.5 13.375 9.625 5.5	21665 1094 11130 1750	1100 2900 249 CALC 11001 CALC	0 CIRC 0 CIRC 249 CALC 0 CIRC	12133'-21491'	5.5" Casing tie-back @ 0-11001'	[51687] RED TANK; BONE SPRING, EAST
60	30-025-26496	LIME ROCK RESOURCES A, L.P.	PRONGHORN AHO FEDERAL	001	Oil	PA	1980 N	1980 E	G	6 23S	33E	9/30/1979	16160	16160	6.5 17.5 12.25 9.5 6.5	5 13.375 10.75 7.625 5	15400 736 5026 12174 15400	540 750 1400 815 540	11676 CIRC 0 CIRC 0 CIRC 7091 CALC 11676 CIRC	N/A	N/A	
61	30-025-27596	OXY USA INC	RED TANK 30 STATE	003	Oil	TA	1980 N	660 E	H	30 22S	33E	10/24/1981	15540	15450	9.5 17.5 12.25 9.5	10.75 13.375 10.75 7.625	4848 711 2050 12150	1105 750 1150 CALC 4300 CALC	0 CIRC 0 CIRC 0 CIRC 0 CIRC	N/A	N/A	
62	30-025-43923	EOG RESOURCES INC	FOGHORN 32 STATE COM	209H	Oil	Active	590 N	330 W	D	32 22S	33E	8/28/2017	9456	14259	8.75 17.5 12.25 8.75	5.5 13.375 9.625 5.5	14247 1066 4914 14247	2156 7300 1028 1380 2156 7300	CALC 0 CIRC 0 CIRC CALC	9626'-14147'	[51687] RED TANK; BONE SPRING, EAST	
63	30-025-45839	OXY USA INC	AVOGATO 31 STATE	100	Monitor	Active	1702 N	1810 W	F	31 22S	33E	6/16/2019	13900	13900	12.25 8.5 17.5 12.25 8.5	9.625 4.5 13.375 9.625 4.5	8825 13883 1210 8825 1097	3380 1097 1560 3380 7160 CALC	0 CIRC 0 CIRC 0 CIRC 0 CIRC 0 CIRC	N/A	Monitor Well; No Perfs	N/A
64	30-025-31959	WAGNER OIL CO.	BIGHORN 30 STATE	002	Oil	Active	2310 N	1650 W	F	30 22S	33E	7/8/1993	10491	10491	7.875 17.5 12.25 7.875	5.5 13.375 8.625 5.5	10490 500 4800 10490	1050 600 2150 1050	0 CALC 0 CALC 0 CALC 0 CALC	8887-8906	[51687] RED TANK; BONE SPRING, EAST	
65	30-025-33130	OXY USA INC	CALMON 30 STATE	001	Oil	Active	1930 N	330 W	E	30 22S	33E	11/27/1995	9000	9000	9.875 14.75 9.875 6.75	7.625 10.75 7.625 4.5	4700 825 4700 9000	1160 575 1160 920	4300 CALC 0 CIRC 0 CIRC 4300 CALC	8862-8898	[51689] RED TANK; DELAWARE, WEST	
66	30-025-43737	CIMAREX ENERGY CO.	CORIANDER AOC 1-12 STATE	002H	Oil	Active	330 N	710 E	A	1 23S	32E	8/26/2018	9747	19642	8.5 17.5 12.25 8.75 8.5	5.5 13.375 9.625 7 5.5	19642 1295 4970 8100 19642	1635 1865 3755 3755	0 CIRC 0 CIRC 0 CIRC 0 CIRC	9898-19590	[17644] DIAMONDTAIL; BONE SPRING	
67	30-025-33531	CIMAREX ENERGY CO.	CORIANDER AOC STATE	001	Oil	PA	330 N	330 E	A	1 23S	32E	35302	9121	9121	7.875 14.75 11 7.875	5.5 11.75 8.625 5.5	9121 1150 4797 9121	700 1150 925 925	0 CIRC 0 CIRC 0 CIRC 2692 CALC	N/A	Well of interest. Delaware and Avalon Sand Perfs in communication	N/A
68	30-025-33574	EOG Y RESOURCES, INC.	CORIANDER AOC STATE	002	Oil	PA	1650 N	330 E	H	1 23S	32E	35338	9170	9170	7.875 14.75 11 7.875	5.5 11.75 8.625 5.5	9170 1153 4790 9170	700 1250 1000 1000	0 CIRC 0 CIRC 0 CIRC 0 CALC	N/A	Well of interest. Delaware and Avalon Sand Perfs in communication	N/A
69	30-025-32581	OXY USA INC	COVINGTON A FEDERAL	010	Oil	Active	660 S	1980 E	O	25 22S	32E	5/19/1995	8990	8990	7.875 17.5 11 7.875	5.5 13.375 8.625 5.5	8990 811 4720 8990	1650 900 1800 1650	1500 CALC 0 CIRC 0 CIRC 1500 CALC	8526-8548; 8343-8374; 8058-8083; 7935-7942; 6998-7030; 5018-5028	[51689] RED TANK; DELAWARE, WEST	
70	30-025-33142	OXY USA INC	COVINGTON A FEDERAL	013	Oil	Active	2310 S	1980 E	J	25 22S	32E	12/27/1995	9000	9000	6.75 14.75 9.625 6.75	4.5 10.75 7.625 4.5	9000 804 4695 9000	915 600 1300 915	2760 CALC 0 CIRC 0 CIRC 2760 CALC	8536-8556; 8366-8386; 7930-7942; 7000-7018	[51689] RED TANK; DELAWARE, WEST	
71	30-025-34455	OXY USA INC	COVINGTON A FEDERAL	037	Oil	Active	1575 S	1950 E	J	25 22S	32E	9/16/1999	8960	8960	6.75 14.75 9.875 6.75	4.5 10.75 7.625 4.5	8960 855 4710 8960	1105 800 1880 1105	3600 CALC 0 CIRC 0 CIRC 3600 CALC	8608-8628; 8104-8124; 7822-7936;	[51689] RED TANK; DELAWARE, WEST	
72	30-025-32290	OXY USA INC	COVINGTON A FEDERAL	004	Oil	Active	1980 S	990 E	I	25 22S	32E	1/12/1996	9010	9010	6.75 14.75 9.875 6.75	4.5 10.75 7.625 4.5	9010 790 4700 9010	615 600 1500 615	2990 CALC 0 CIRC 510 CALC 2990 CALC	8536-8556; 8048-8067;	[51689] RED TANK; DELAWARE, WEST	
73	30-025-33319	OXY USA INC	COVINGTON A FEDERAL	015	Oil	PA	330 N	1300 E	A	25 22S	32E	7/31/1997	9010	9010	9.625 14.75 6.75	7.625 10.75 4.5	4705 831 9010	1600 800 1325	0 CIRC 0 CIRC 1800 CALC	N/A	N/A	
74	30-025-33093	EOG RESOURCES INC	MULE DEER 36 STATE	003	Oil	Active	1980 S	1980 E	J	36 22S	32E	9/22/1995	9000	9000	7.875 17.5 12.25 7.875	5.5 13.375 8.625 5.5	9000 854 4684 9000	1390 750 1600 1390	0 CALC 0 CALC 0 CALC 0 CALC	8889-8901	[51683] RED TANK; BONE SPRING	

75	30-025-33498	EOG RESOURCES INC	MULE DEER 36 STATE	006	Oil	Active	330 S	1980 E	O	36 22S	32E	8/1/1996	9080	9080	17.5	13.375	867	750	0 CIRC	8922-8957	[51683] RED TANK; BONE SPRING	
															12.25	8.625	4702	1400	0 CIRC			
															7.875	5.5	9080	1020	3821 CALC			
76	30-025-32837	EOG RESOURCES INC	MULE DEER 36 STATE	001	Oil	PA	330 N	1980 E	B	36 22S	32E	4/7/1995	9018	9018	17.5	13.375	855	800	0 CIRC	N/A	N/A	
															12.25	8.625	4697	1450	0 CIRC			
															7.875	5.5	9018	1450	4800 CALC			
77	30-025-33239	EOG RESOURCES INC	MULE DEER 36 STATE	005	Oil	PA	1980 N	990 E	H	36 22S	32E	1/14/1996	9024	9024	17.5	13.375	857	750	0 CIRC	N/A	Well of Interest. Delaware and Avalon Sand Perfs in communication	N/A
															12.25	8.625	4666	1450	0 CIRC			
															7.875	5.5	9024	950	3300 CALC			
78	30-025-33823	EOG RESOURCES INC	MULE DEER 36 STATE	008	Oil	PA	1650 S	770 E	I	36 22S	32E	3/15/1997	9088	9088	12.25	9.625	1223	500	0 CIRC	N/A	N/A	
															8.75	7	4704	1175	35 CALC			
															6.125	4.5	9088	310	6795 CALC			
79	30-025-33082	OXY USA INC	RED TANK 31 STATE	001	Oil	PA	330 N	330 W	D	31 22S	33E	9/23/1995	9010	9010	14.75	10.75	816	700	0 CIRC	N/A	N/A	
															9.875	7.625	4740	970	0 CIRC			
															6.75	4.5	9010	780	3590 CALC			
80	30-025-33011	OXY USA INC	RED TANK 30 STATE	001	Oil	PA	990 S	330 W	M	30 22S	33E	7/19/1995	9020	9020	17.5	13.375	807	900	0 CIRC	N/A	N/A	
															11	8.625	4710	1600	0 CIRC			
															7.875	5.5	9020	1030	3580 CALC			
81	30-025-33431	OXY USA INC	RED TANK 31 STATE	002	Oil	Active	1650 N	330 W	E	31 22S	33E	4/6/2000	9050	9050	14.75	10.75	822	770	0 CIRC			
															9.875	7.625	4730	1750	0 CIRC			
															6.75	4.5	9050	1050	3181 CALC			
82	30-025-33580	OXY USA INC	RED TANK 31 STATE	004	Oil	Active	330 S	330 W	M	31 22S	33E	9/30/1996	9100	9100	14.75	10.75	820	780	0 CIRC	8550-8566	[51689] RED TANK; DELAWARE, WEST	
															9.875	7.625	4770	1150	0 CIRC			
															6.75	4.5	9100	775	3500 CALC			
83	30-025-46335	MATADOR PRODUCTION COMPANY	RODNEY ROBINSON FEDERAL	122H	Oil	Active	240 N	1927 W	C	6 23S	33E	9/4/2019	11189	21224	17.5	13.375	1339	1520	0 CIRC	10963-21051	[96228] PRONGHORN; BONE SPRING	
															12.25	9.625	5059	1369	0 CIRC			
															8.75	5.5	21200	4224	28 CALC			
84	30-025-46371	MATADOR PRODUCTION COMPANY	RODNEY ROBINSON FEDERAL	121H	Oil	Active	270 N	827 W	D	6 23S	33E	9/27/2019	11164	21253	17.5	13.375	1339	1140	0 CIRC	11135-21109	[96228] PRONGHORN; BONE SPRING	
															12.25	9.625	5063	1555	0 CIRC			
															8.75	5.5	21289	3838	2900 CALC			
85	30-025-46279	MATADOR PRODUCTION COMPANY	RODNEY ROBINSON FEDERAL	102H	Oil	Active	270 N	1927 W	C	6 23S	33E	9/2/2019	9550	19750	17.5	13.375	1337	1515	0 CIRC	9591-19593	[96228] PRONGHORN; BONE SPRING	
															12.25	9.625	5060	1369	0 CIRC			
															8.75	5.5	19740	3615	0 CIRC			
86	30-025-47350	MATADOR PRODUCTION COMPANY	RODNEY ROBINSON FEDERAL COM	133H	Oil	Active	367 S	1730 E	O	7 23S	33E	9/25/2020	12009	22435	17.5	13.375	1394	1190	CALC	12386-22283	[96228] PRONGHORN; BONE SPRING	
															9.875	7.625	11441	2610	CALC			
															6.75	5.5	22420	1090	CALC			
87	30-025-47351	MATADOR PRODUCTION COMPANY	RODNEY ROBINSON FEDERAL COM	203H	Oil	Active	385 S	1706 E	O	7 23S	33E	9/23/2020	12213	22462	17.5	13.375	1389	1190	0 CIRC	12685-22188	[98177] WC-025 G-09 S223332A; UPR WOLFCAMP	
															9.875	7.625	11505	2455	0 CIRC			
															6.75	5.5	22447	1299	1250 CALC			
88	30-025-47352	MATADOR PRODUCTION COMPANY	RODNEY ROBINSON FEDERAL COM	204H	Oil	Active	546 S	155 E	P	7 23S	33E	11/5/2020	12220	22640	17.5	13.375	1385	1210	0 CIRC	12526-22488	[98177] WC-025 G-09 S223332A; UPR WOLFCAMP	
															9.875	7.625	11759	2650	1320 CALC			
															6.75	5.5	22640	1170	0 CIRC			
89	30-025-47489	MATADOR PRODUCTION COMPANY	RODNEY ROBINSON FEDERAL COM	134H	Oil	Active	546 S	185 E	P	7 23S	33E	11/9/2020	12000	22415	17.5	13.375	1385	1210	0 CIRC	12538-22256	[96228] PRONGHORN; BONE SPRING	

WELL ID #9

Shaunik Bhatte
3/18/2021

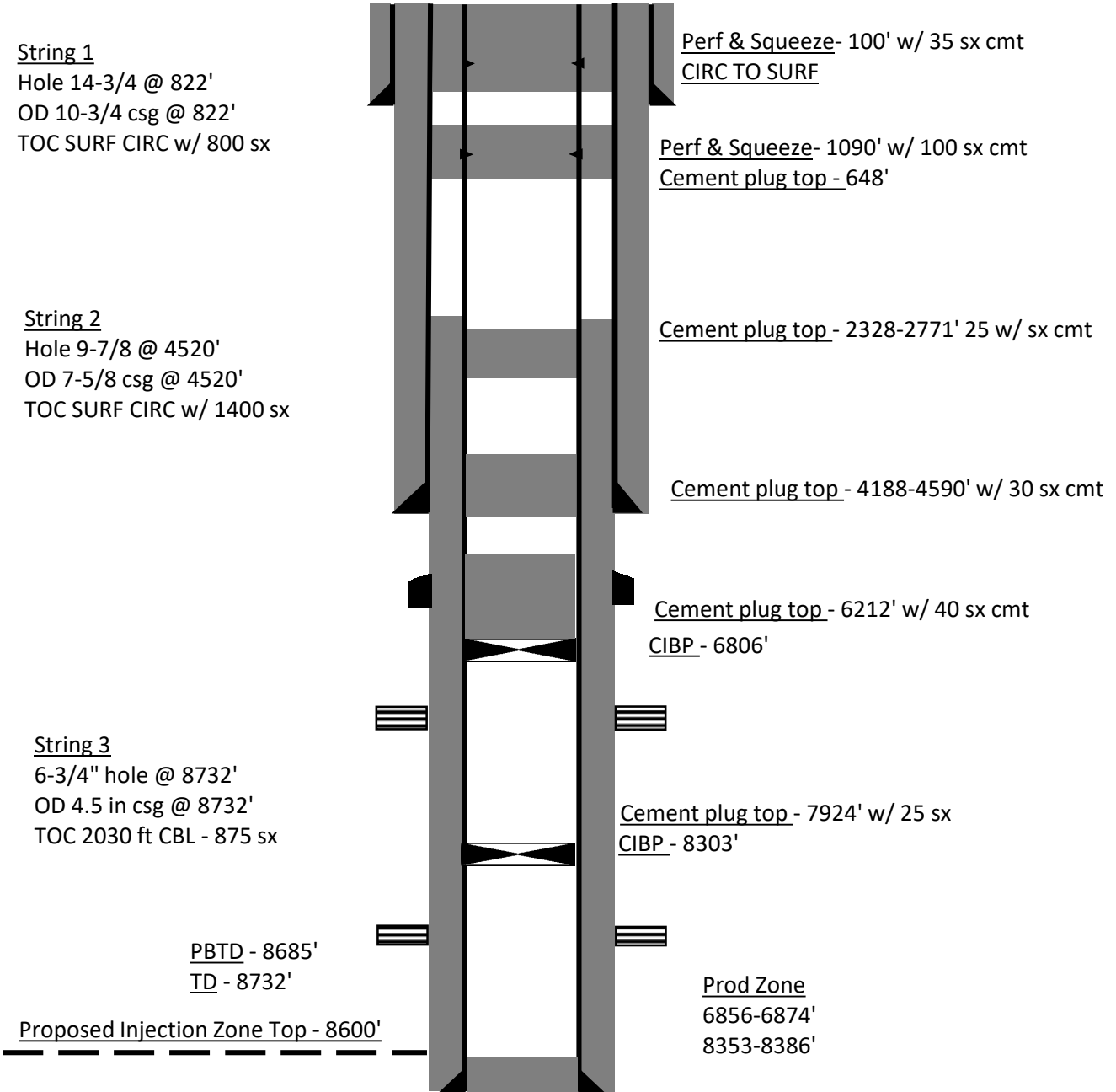
Current Wellbore
Federal 27 004
30-025-32796-0000
Sec 27 T22S R32E SENW 2310 FNL 2310 FWL
Lea County, NM



WELL ID #14

Shaunik Bhatte
3/23/2021

Current Wellbore
Federal 27 008
30-025-32755-0000
Sec 27 T22S R32E SWSW 580 FSL 790 FWL
Lea County, NM



WELL ID #17

Shaunik Bhatte

3/24/2021

Current Wellbore

Red Tank 34 Federal 15

30-025-32912-0000

Sec 34 T22S R32E SWNW 1700 FNL 180 FWL

Lea County, NM

String 1

Hole 14-3/4 @ 818'
OD 10-3/4 csg @ 818'
TOC SURF CIRC w/ 700 sx

Perf & Squeeze- 60' w/ 50 sx cmt
CIRC TO SURF

Perf & Squeeze- 1090' w/ 140 sx cmt
Top of Plug - 190'

Perf & Squeeze- 2135' w/ 60 sx cmt
Top of Plug - 1963'

Perf & Squeeze- 3425' w/ 60 sx cmt
Top of Plug - 3273'

String 2

Hole 9-7/8 @ 4520'
OD 7-5/8 csg @ 4520'
TOC SURF CIRC w/ 1400 sx

Cement plug top - 4249-4740'
w/ 30 sx cmt

Cement plug top - 6013-6495' w/ 25 sx cmt

String 3

6-3/4" hole @ 8742'
OD 4.5 in csg @ 8742'
TOC 3674 ft CBL - 900 sx

Cement plug top - 6778' w/ 25 sx cmt

CIBP - 7150'

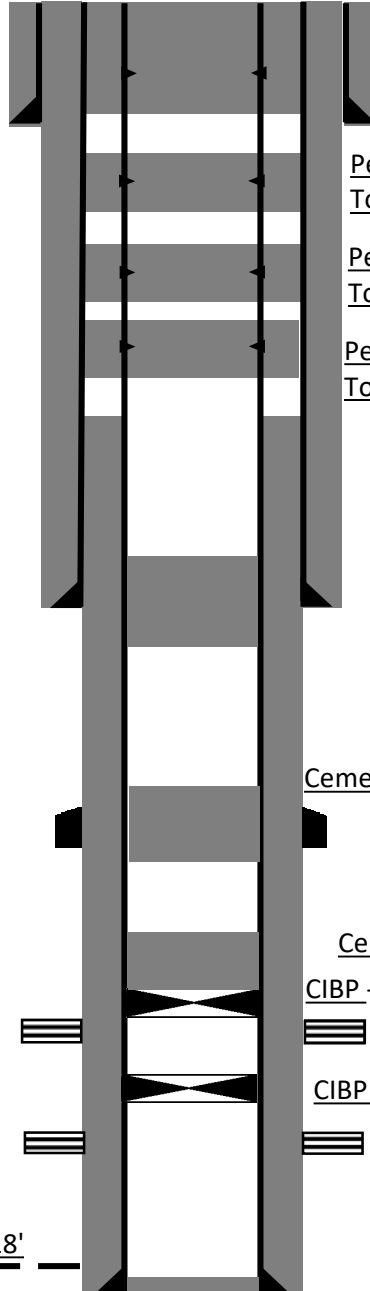
Prod Zone
7197-7210'
8376-8410'

CIBP - 8244'

PBTD - 8695'

TD - 8742'

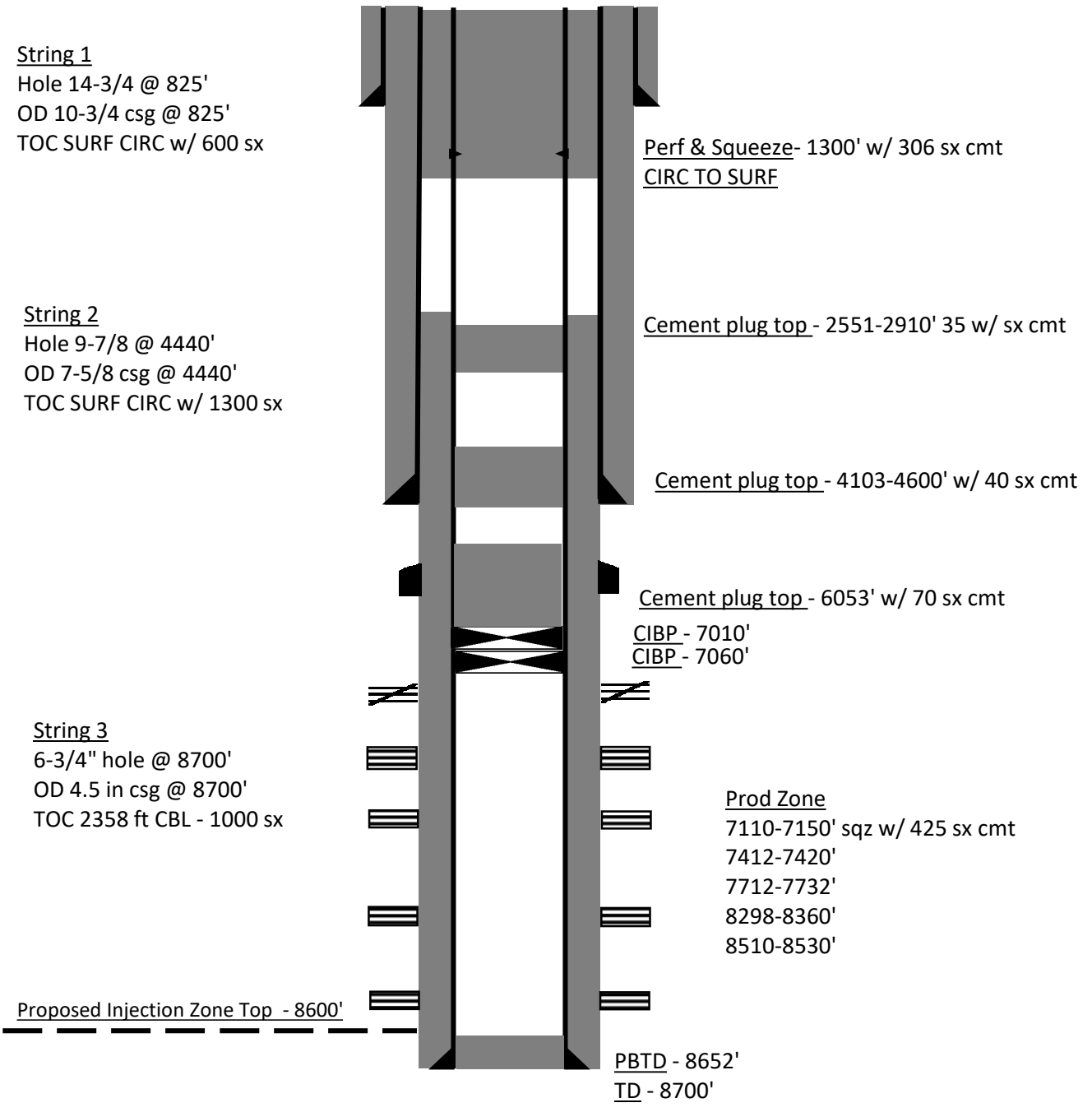
Proposed Injection Zone Top - 8618'



WELL ID #21

Shaunik Bhatte
3/23/2021

Current Wellbore
Federal 27 006
30-025-32842-0000
Sec 27 T22S R32E NWSW 1650 FSL 990 FWL
Lea County, NM



WELL ID #30

Shaunik Bhatte

3/24/2021

Current Wellbore

Covington A Federal 14

30-025-33399-0000

Sec 25 T22S R32E SWNE 1650 FNL 1650 FEL

Lea County, NM

String 1

Hole 14-3/4 @ 800'
OD 10-3/4 csg @ 800'
TOC SURF CIRC w/ 800 sx

Perf & Squeeze- 850' w/ 180 sx cmt
CIRC TO SURF

String 2

Hole 9-7/8 @ 4670'
OD 7-5/8 csg @ 4670'
TOC SURF CIRC w/ 1150 sx

Perf & Squeeze- 2760' w/ 40 sx cmt
Top of Plug - 2555'

Prod Zone

4950-5020'
6228-6366'
8046-8066'
8528-8548'
8836-8855'

Cement plug top - 4380' w/ 35 sx cmt

CIBP - 4900'

Cement plug - 5295-6380' w/ 35 sx cmt
(tagged high CTOC= 5851')

String 3

6-3/4" hole @ 8966'
OD 4.5 in csg @ 8966'
TOC 3202 ft CBL - 1100 sx

Cement plug top - 7911' w/ 25 sx cmt
Unknown bottom, tagged lower than expected

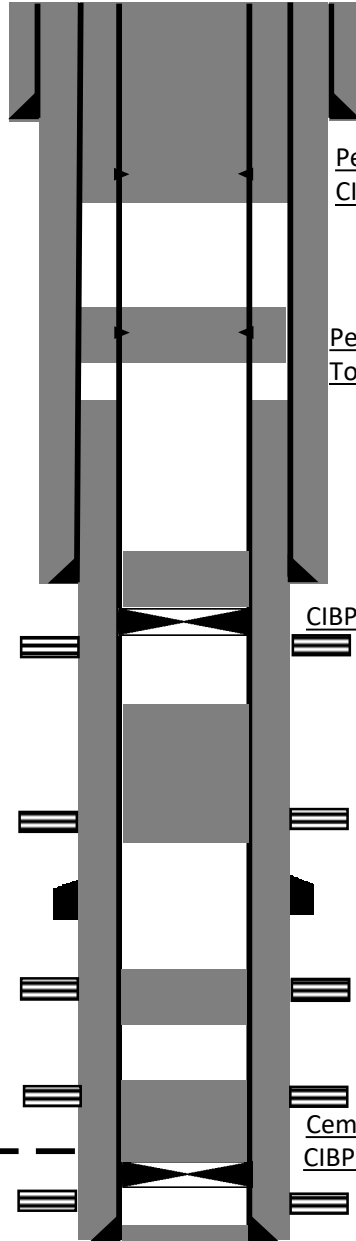
Proposed Injection Zone - 8700'

Cement plug top - 8496' w/ 25 sx cmt

CIBP - 8800'

PBTD - 8919'

TD - 8966'



Shaunik Bhatte
3/24/2021

Current Wellbore
Covington A Federal 16
30-025-33224-0000
Sec 25 T22S R32E SWNE 1650 FNL 1650 FEL
Lea County, NM

String 1

Hole 14-3/4 @ 830'
OD 10-3/4 csg @ 830'
TOC SURF CIRC w/ 780 sx

Perf & Squeeze- 60' & 880' w/ 190 sx cmt
CIRC TO SURF

String 2

Hole 9-7/8 @ 4695'
OD 7-5/8 csg @ 4695'
TOC SURF CIRC w/ 1125 sx

Perf & Squeeze- 2780' w/ 50 sx cmt
Top of Plug - 2590'

Perf & Squeeze- 5055' w/ 100 sx cmt
Top of Plug - 4603'

Cement plug - 5490' - 5670'
Holes - 5574-5602'

Prod Zone

6304-6322'
6990-7014'
7338-7348'
7944-8086'
8647-8674'
8864-8888'

Calculated cement plug top - 5875' w/ 25 sx cmt
CIBP - 6254'

Cement plug - 6387'-6766' w/ 25 sx cmt

String 3

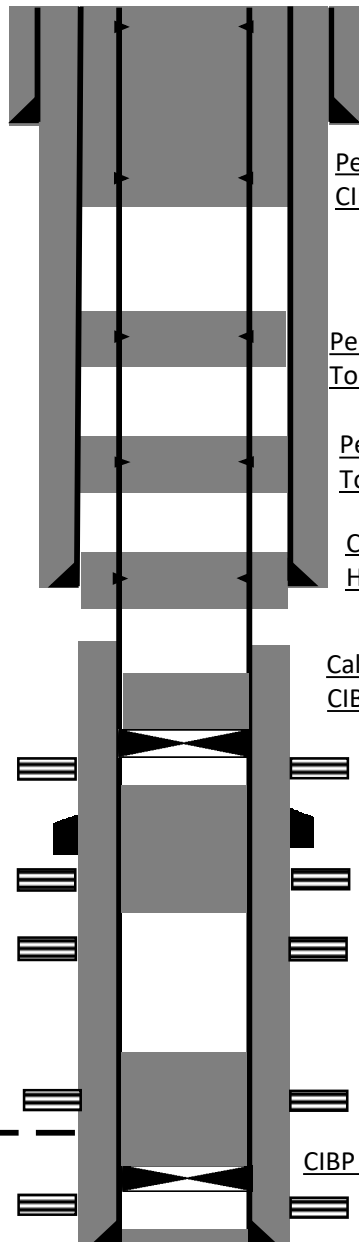
6-3/4" hole @ 8980'
OD 4.5 in csg @ 8980'
TOC 5828 ft CBL - 490 sx

Cement plug top - 8285' w/ 25 sx
cmt (tagged high CTOC= 8448')

CIBP - 8829'

Proposed Injection Zone Top - 8746'

PBTD - 8980'
TD - 8980'



Well ID #39

Shaunik Bhatte

3/24/2021

Current Wellbore

Thyme APY Federal 1

30-025-33370-0000

Sec 1 T23S R32E NWNE 330' FNL 1650' FEL

Lea County, NM

String 1

Hole 14-3/4 @ 1165'
OD 11-3/4 csg @ 1165'
TOC SURF CIRC w/ 750 sx

Cement plug top - Surf to circ w/ 25 sx cmt

Cement plug top - 1052-1345' w/ 90 sx cmt

Cement plug top - 2572-2760' w/ 45 sx cmt

Cut and Pull 5.5" Casing - 2700'

String 2

Hole 11" @ 4790'
OD 8-5/8 csg @ 4790'
TOC SURF CIRC w/ 1175 sx

Cement plug top - 4624-5020' w/ 60 sx cmt

String 3

7-7/8" hole @ 10250'
OD 5-1/2 in csg @ 10250'
TOC 3000 ft CBL - 1075 sx

Cement plug on top w/ 25 sx cmt

Proposed Injection Zone Top - 8825'

CIBP - 8900'

Prod Zone

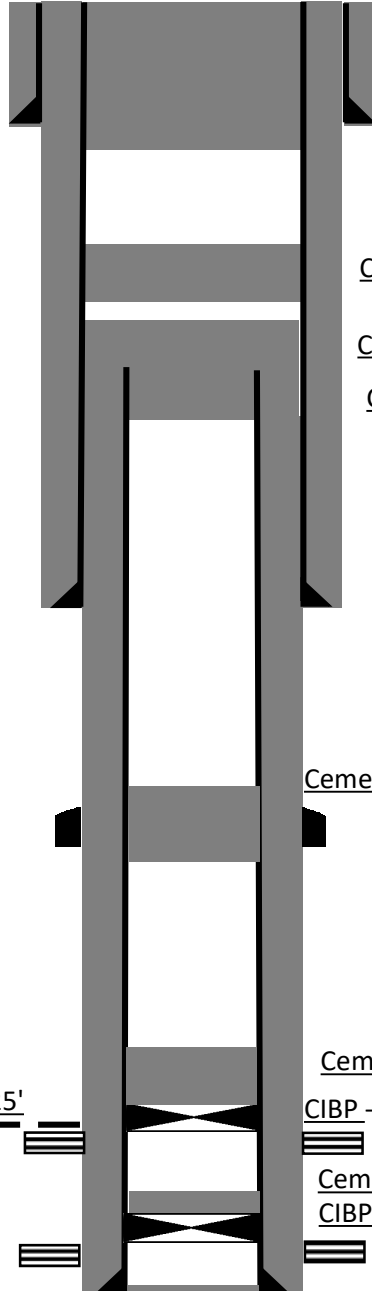
8966-9008' - Bone Spring perfs
10029-10071' - Bone Spring perfs

Cement plug top - 9915'

CIBP - 9950'

PBTD - 10162'

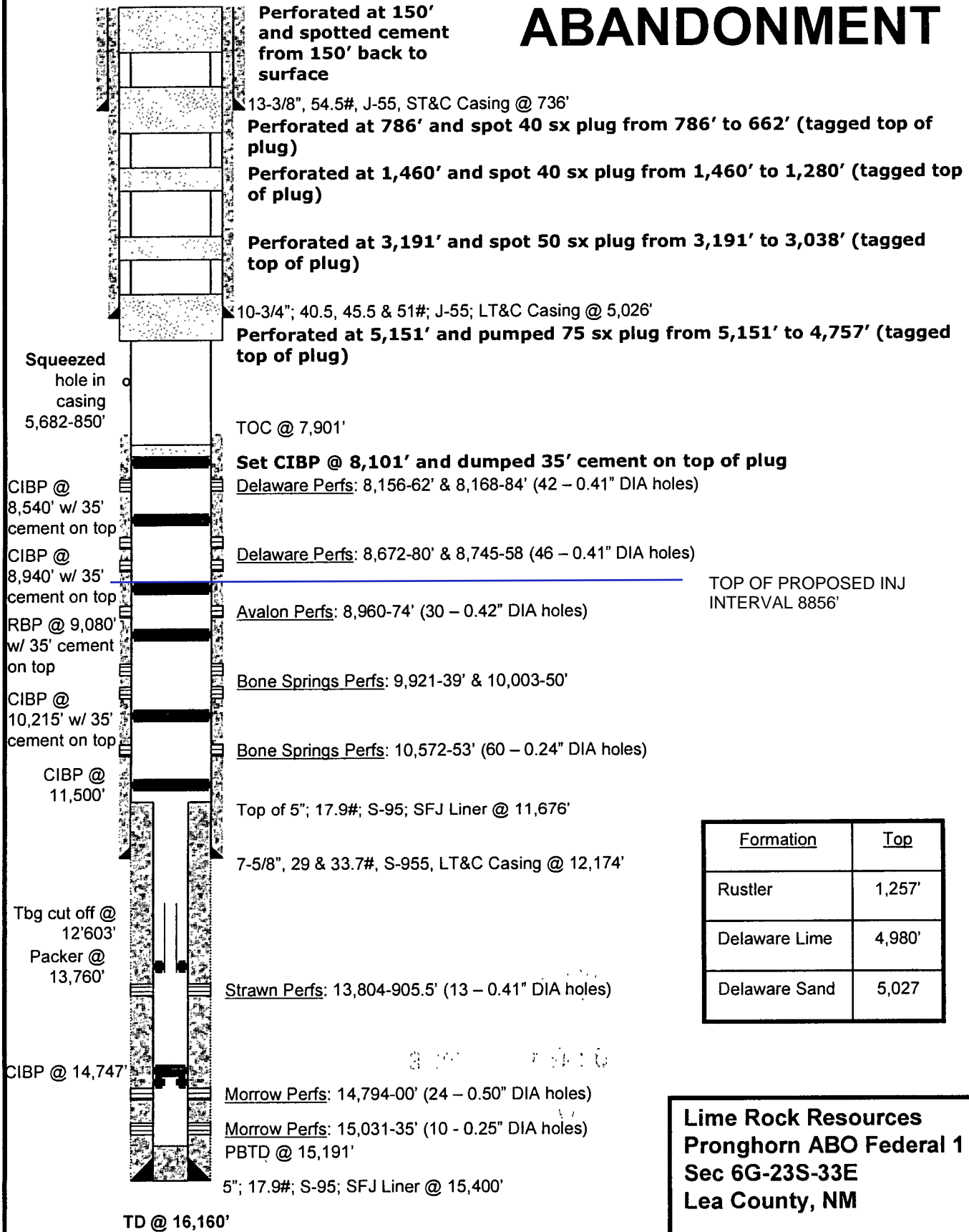
TD - 10250'



WELL ID #60



FINAL ABANDONMENT



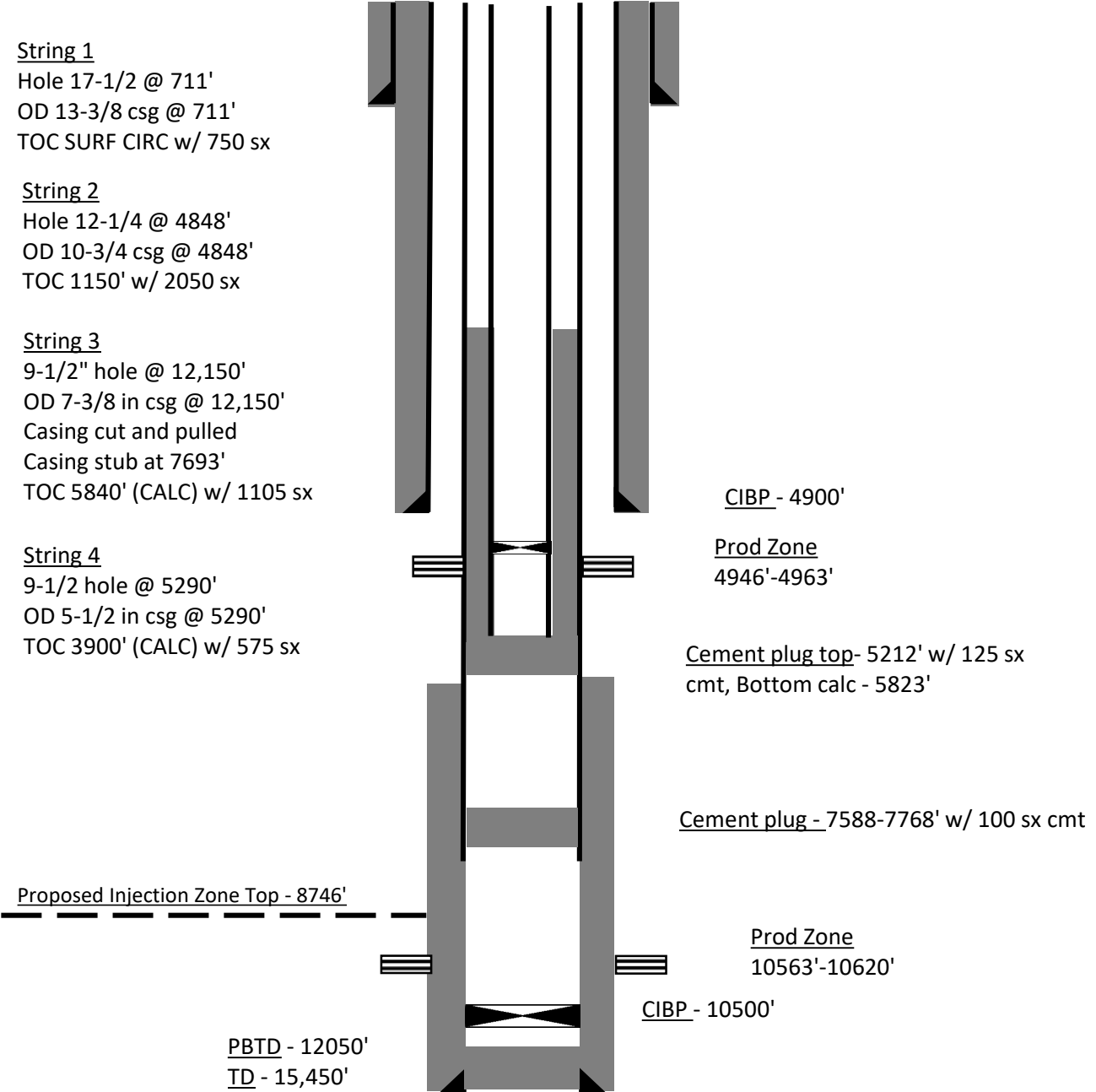
Formation	Top
Rustler	1,257'
Delaware Lime	4,980'
Delaware Sand	5,027'

**Lime Rock Resources
 Pronghorn ABO Federal 1
 Sec 6G-23S-33E
 Lea County, NM**

WELL ID #61

Shaunik Bhatte
3/24/2021

Current Wellbore
Red Tank 30 State 3
30-025-27596-0000
Sec 30 T22S R33E 19800 FNL 660 FEL
Lea County, NM



WELL ID #67

Shaunik Bhatte

5/4/2021

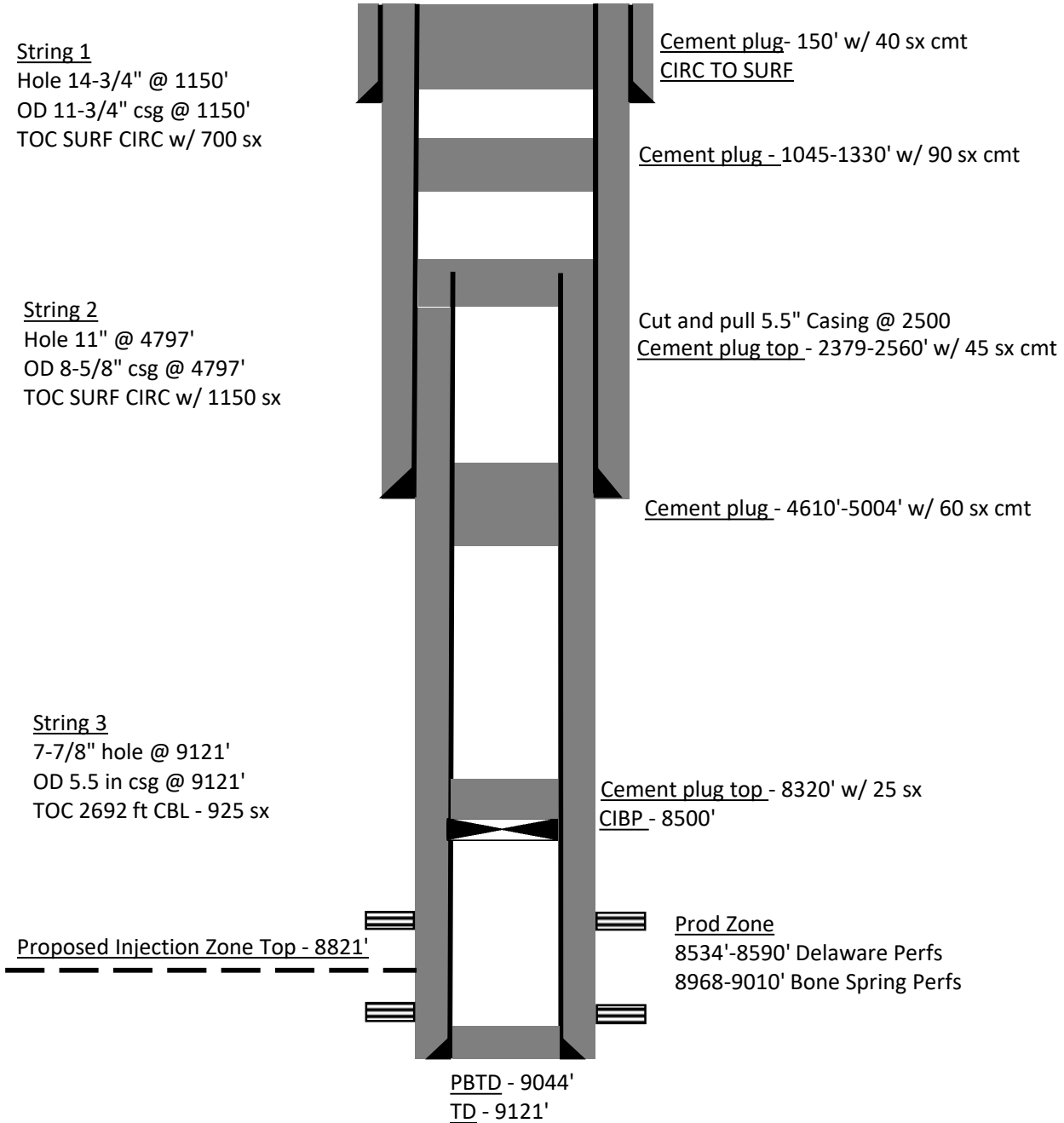
Current Wellbore

Coriander AOC State 001

30-025-33531-0000

Sec 01 T23S R32E 330 FNL 330 FEL

Lea County, NM



WELL ID #68

Shaunik Bhatte

5/4/2021

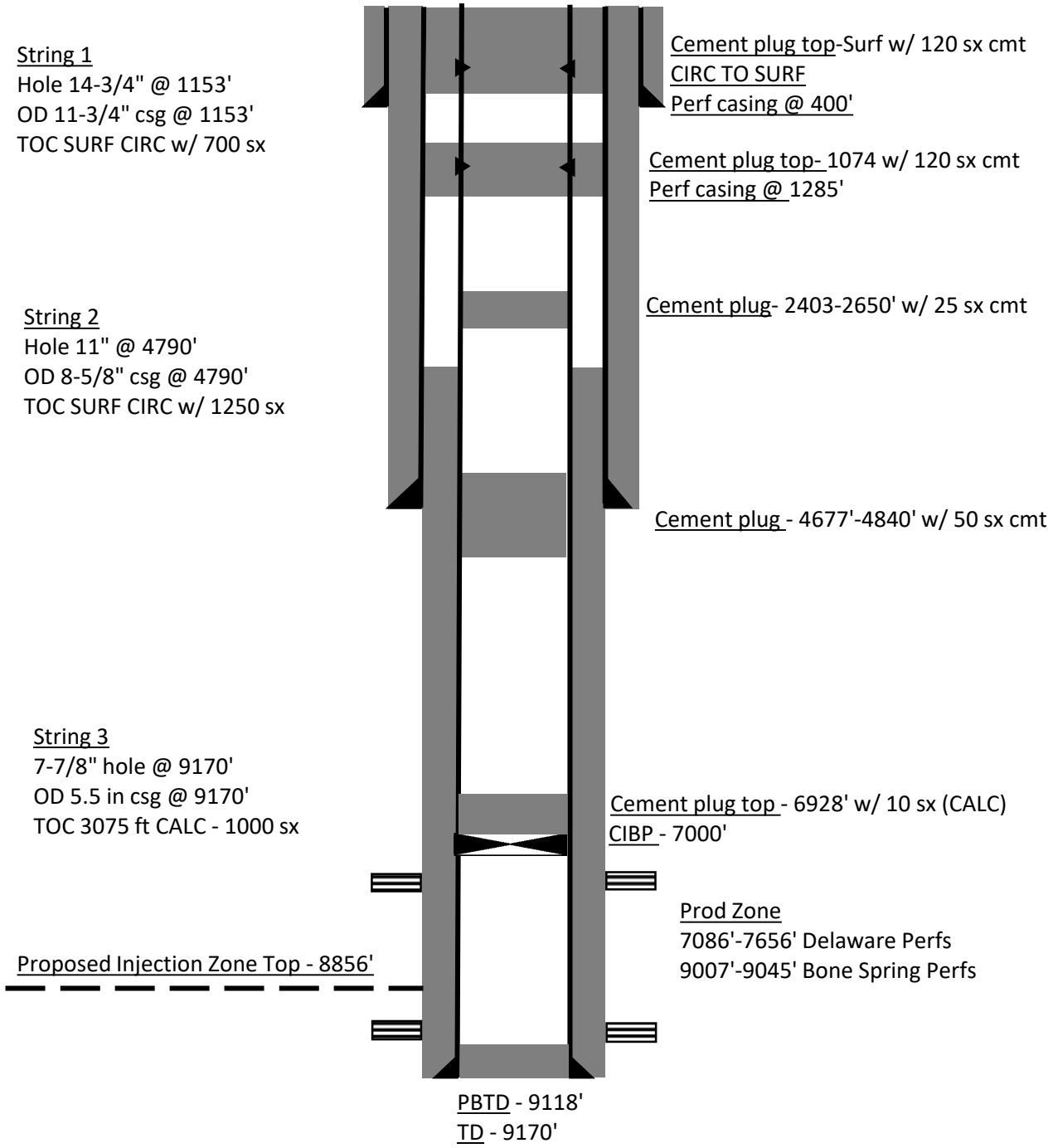
Current Wellbore

Coriander AOC State 002

30-025-33574-0000

Sec 01 T23S R32E 1650 FNL 330 FEL

Lea County, NM



WELL ID #73

Shaunik Bhatte

5/5/2021

Current Wellbore

Covington A Federal 15

30-025-33319-0000

Sec 25 T22S R32E 330 FNL 1300 FEL

Lea County, NM

String 1

Hole 14-3/4 @ 831'
OD 10-3/4 csg @ 831'
TOC SURF CIRC w/ 800 sx

Perf & Squeeze- 1250' w/ 230 sx cmt
CIRC TO SURE

String 2

Hole 9-5/8 @ 4705'
OD 7-5/8 csg @ 4705'
TOC SURF CIRC w/ 1600 sx

Cement Plug - 2646'-3024' w/ 25 sx cmt (CALC)

Cement plug - 4488'-5002' w/ 35 sx cmt

Casing Damage Squeezed- 6309'-6282'
Cement plug top - depth unknown

String 3

6-3/4" hole @ 9010'
OD 4-1/2 in csg @ 9010'
TOC 1800 ft CBL - 1325 sx

Cement plug top - 6540' w/ 60 sx cmt
Casing Damage Squeezed- 7035'-7064'

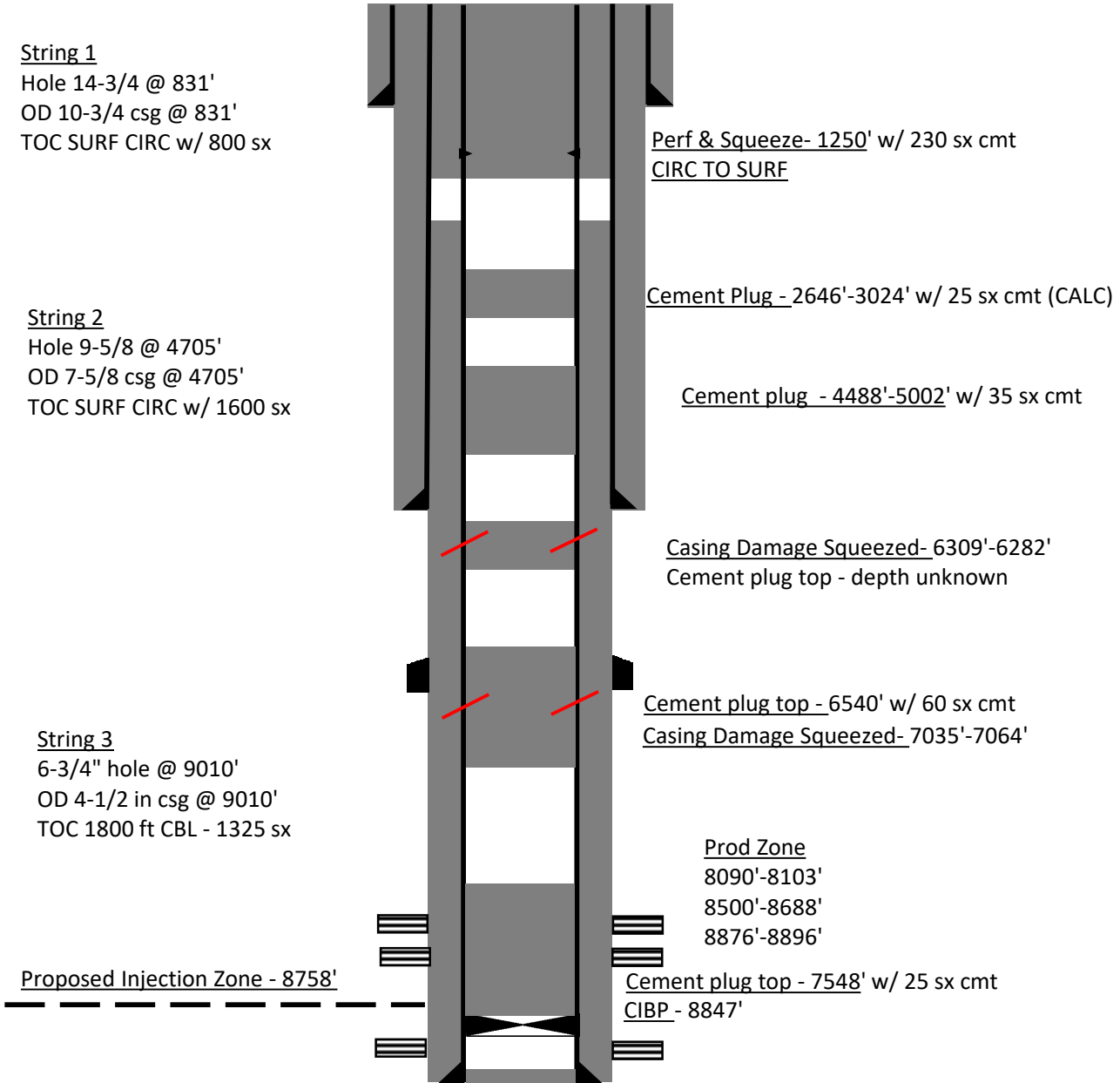
Prod Zone
8090'-8103'
8500'-8688'
8876'-8896'

Proposed Injection Zone - 8758'

Cement plug top - 7548' w/ 25 sx cmt
CIBP - 8847'

PBTD - 8977'

TD - 9010'



WELL ID #76

Shaunik Bhatte
5/5/2021

Current Wellbore
Mule Deer 36 State 1
30-025-32837-0000
Sec 36 T22S R32E 330 FNL 1980 FEL
Lea County, NM

String 1
Hole 17-1/2 @ 855'
OD 13-3/8 csg @ 855'
TOC SURF CIRC w/ 800 sx

Perf and Squeeze @ 155'
CIRC TO SURF 45 SX

String 2
Hole 12-1/4 @ 4697'
OD 8-5/8 csg @ 4697'
TOC SURF CIRC w/ 1450 sx

Perf and Squeeze @ 905'
Cement plug top - 788' w/ 45 sxs

String 3
7-7/8" hole @ 9018'
OD 5-1/2 in csg @ 9018'
TOC 4800 ft CBL - 1450 sx

CIBP_set @ 4920'
Cement plug top - 4470' w/ 25 sxs

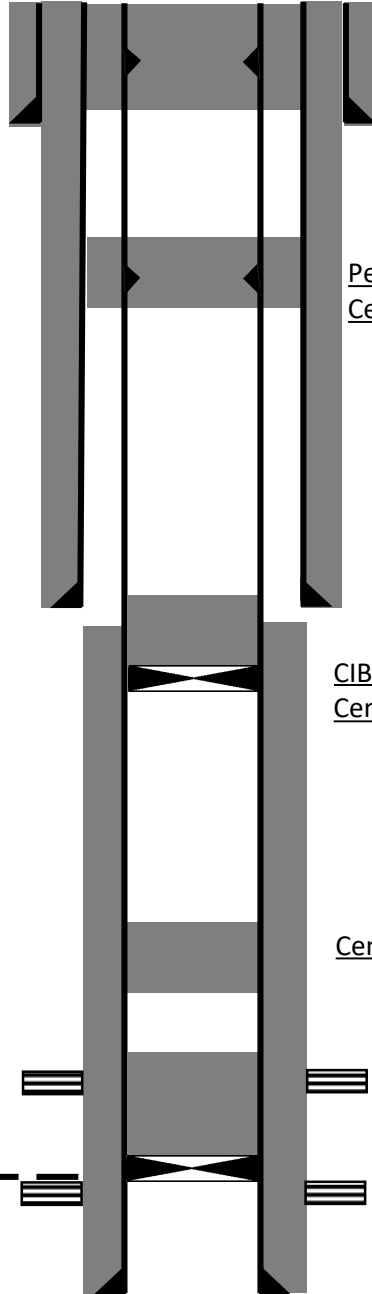
Cement plug - 6431-6613' w/ 25 sxs

CIBP_set @ 8750'
Cement plug top - 8406' w/ 25 sxs

Prod Zone
8472-8611' (Delaware)
8816-8860' (Bone Spring)

Proposed Injection Zone Top - 8709'

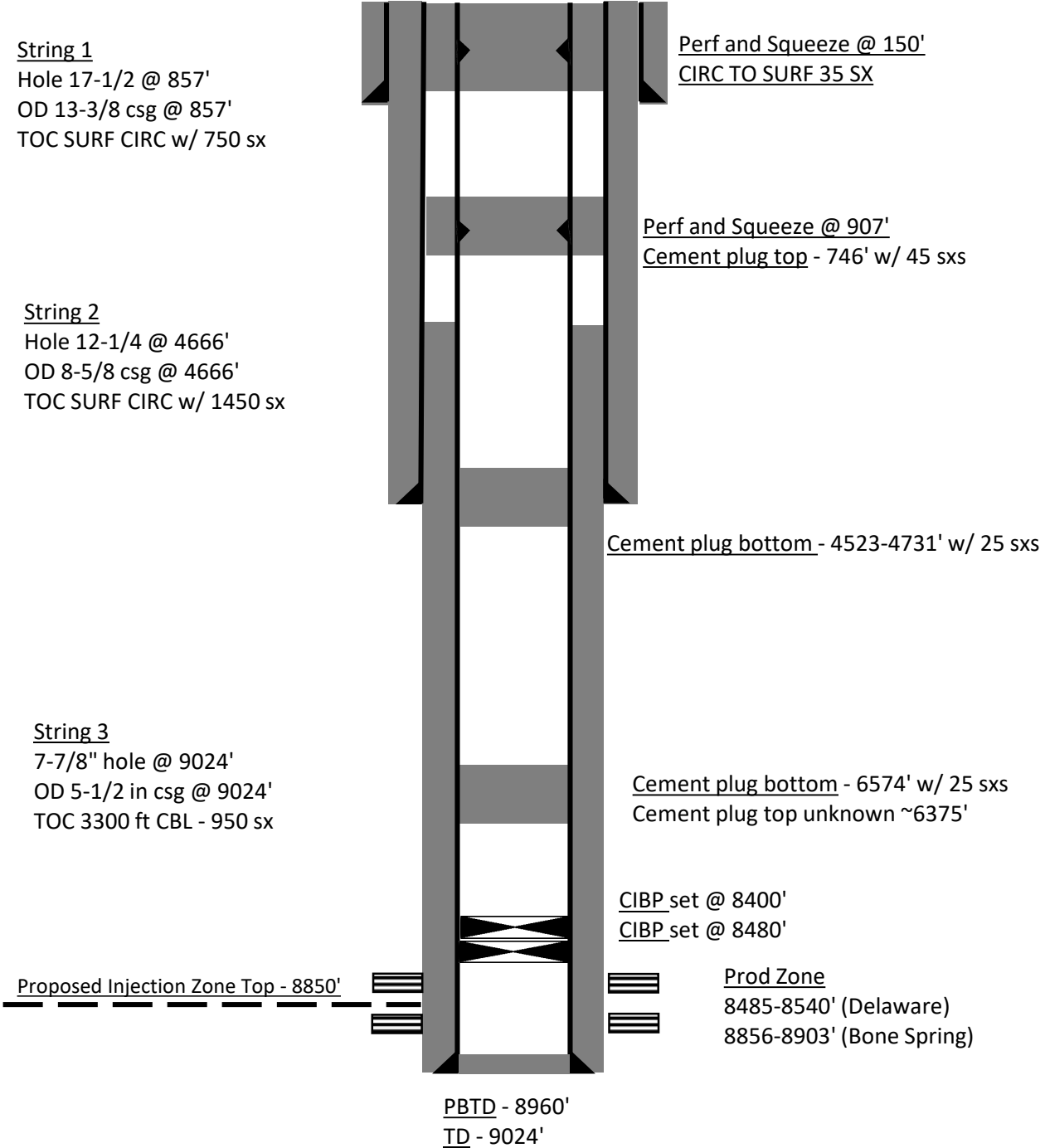
PBTD - 8976'
ID - 9018'



WELL ID #77

Shaunik Bhatte
5/5/2021

Current Wellbore
Mule Deer 36 State 5
30-025-33239-0000
Sec 36 T22S R32E 1980 FNL 990 FEL
Lea County, NM



Well ID #78

Shaunik Bhatte

5/5/2021

Current Wellbore

Mule Deer 36 State 8

30-025-33823-0000

Sec 36 T22S R32E 1650 FSL 770 FEL

Lea County, NM

String 1

Hole 12-1/4 @ 1223'
OD 9-5/8 csg @ 1223'
TOC SURF CIRC w/ 500 sx

Cement plug bottom - 50'
CIRC TO SURF 20 SX

Cement plug bottom - 410' w/ 30 sxs
(unknown top)

Cement plug - 1160-1273' w/ 35 sxs

String 2

Hole 8-3/4 @ 4704'
OD 7 csg @ 4704'
TOC @ 35' w/ 1175 sx

Cement plug - 4396'-4762' w/ 120 sxs

String 3

6-1/8" hole @ 9088'
OD 4-1/2 in csg @ 9088'
TOC 6795 ft CBL - 310 sx

Casing cut and pulled @ 5700'
Cement plug- 5621'-6249' w/ 60 sxs

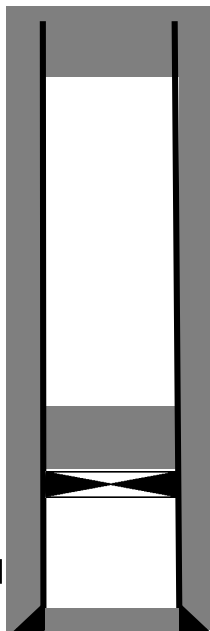
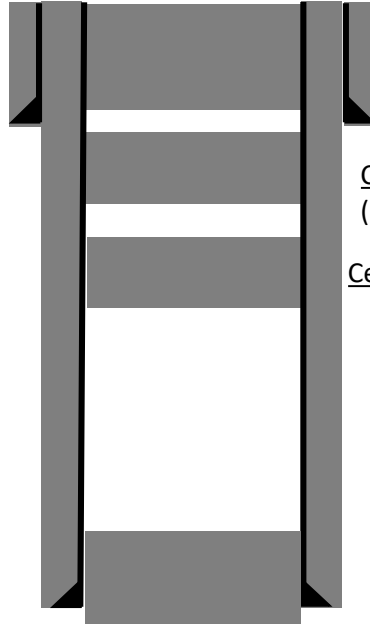
Plug Top @ 8606' (CALC)
CIBP set @ 8835'

Proposed Injection Zone Top - 8700'

Prod Zone
8885-8932' (Bone Spring)

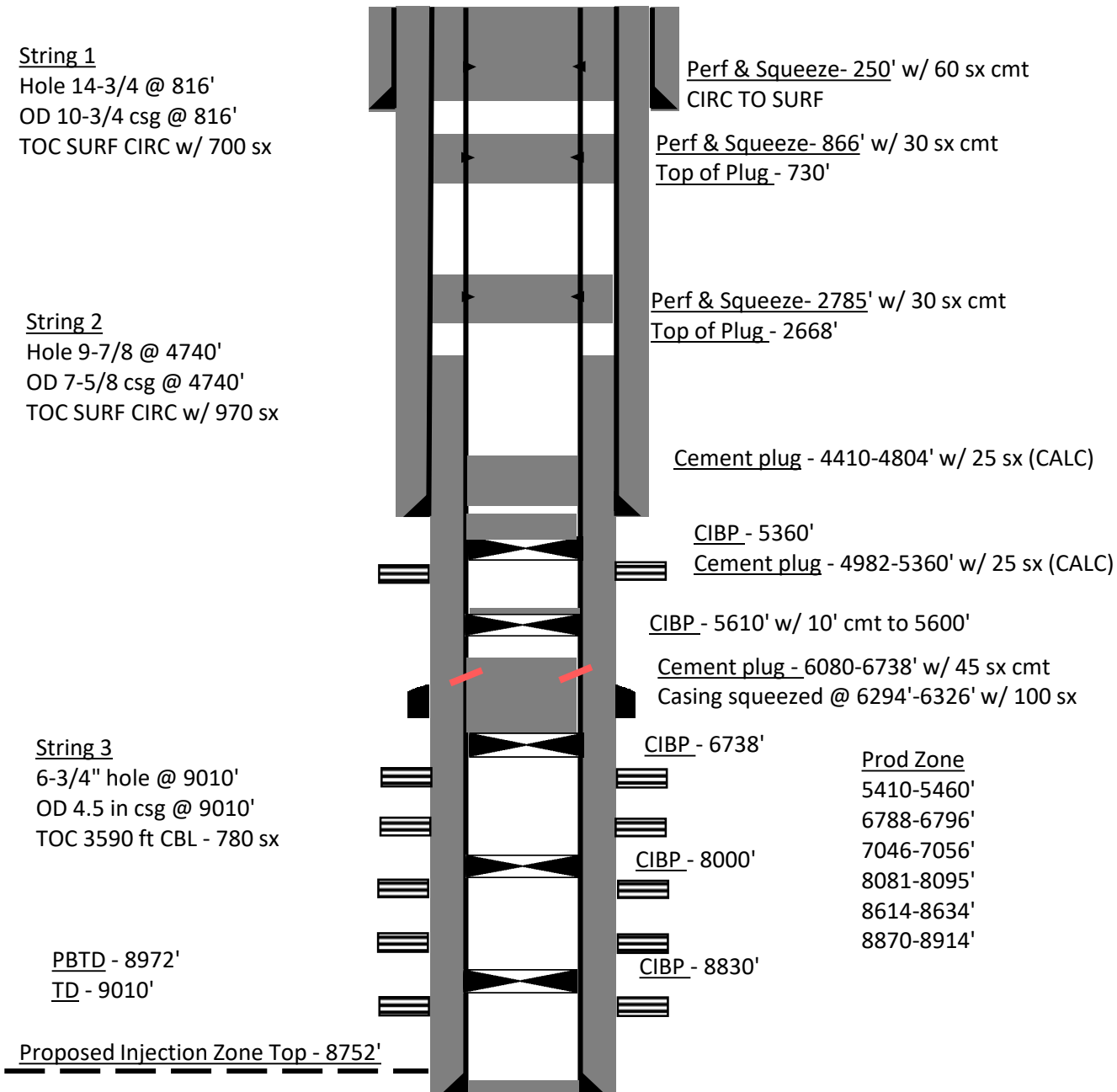
PBTD - 9040'

TD - 9088'



Shaunik Bhatte
 5/5/2021

Current Wellbore
Red Tank 31 State 1
 30-025-33082-0000
 Sec 31 T22S R33E 330 FNL 330 FWL
 Lea County, NM



WELL ID #80

Shaunik Bhatte

5/5/2021

Current Wellbore

Red Tank 30 State 1

30-025-33011-0000

Sec 30 T22S R33E 990 FSL 330 FWL

Lea County, NM

String 1

Hole 17-1/2 @ 807'
OD 13-3/8 csg @ 807'
TOC SURF CIRC w/ 900 sx

Perf & Squeeze- 857' w/ 267 sx cmt
CIRC TO SURF

String 2

Hole 11 @ 4710'
OD 8-5/8 csg @ 4710'
TOC SURF CIRC w/ 1600 sx

Perf & Squeeze- 2780' w/ 50 sx cmt
Top of Plug - 2586'

Cement plug - 4481-4760' w/ 35 sx

String 3

7-7/8" hole @ 9020'
OD 5-1/2 in csg @ 9020'
TOC 3580 ft CBL - 1030 sx

Cement plug - 5870-6226' w/ 35 sx cmt (CALC)

CIBP - 6226'

Prod Zone

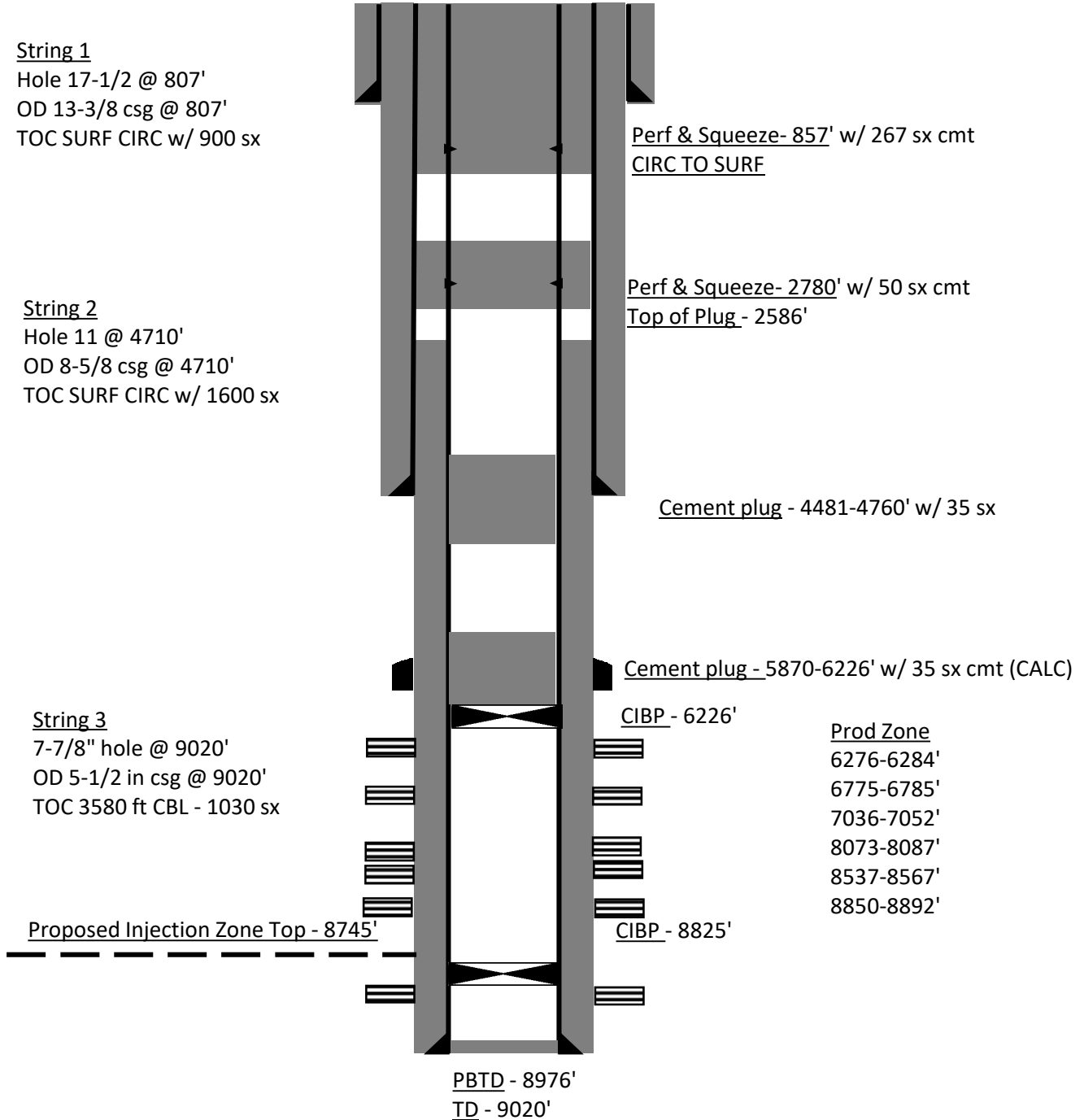
- 6276-6284'
- 6775-6785'
- 7036-7052'
- 8073-8087'
- 8537-8567'
- 8850-8892'

Proposed Injection Zone Top - 8745'

CIBP - 8825'

PBTD - 8976'

TD - 9020'



Geology

Tanks Type Log

Proposed Storage Zone

★ Avalon Shale

> Unconventional siliceous mudstone reservoir with natural permeability in the nano-darcy range

Adjacent Oil & Gas Zones

● Brushy Canyon

> Conventional very fine-grained sandstone with permeability in the millidarcy range

● Avalon Sand

> Conventional very fine-grained sandstone with permeability in the millidarcy range

● 1st Bone Spring Sand

> Conventional very fine-grained sandstone with permeability in the millidarcy range

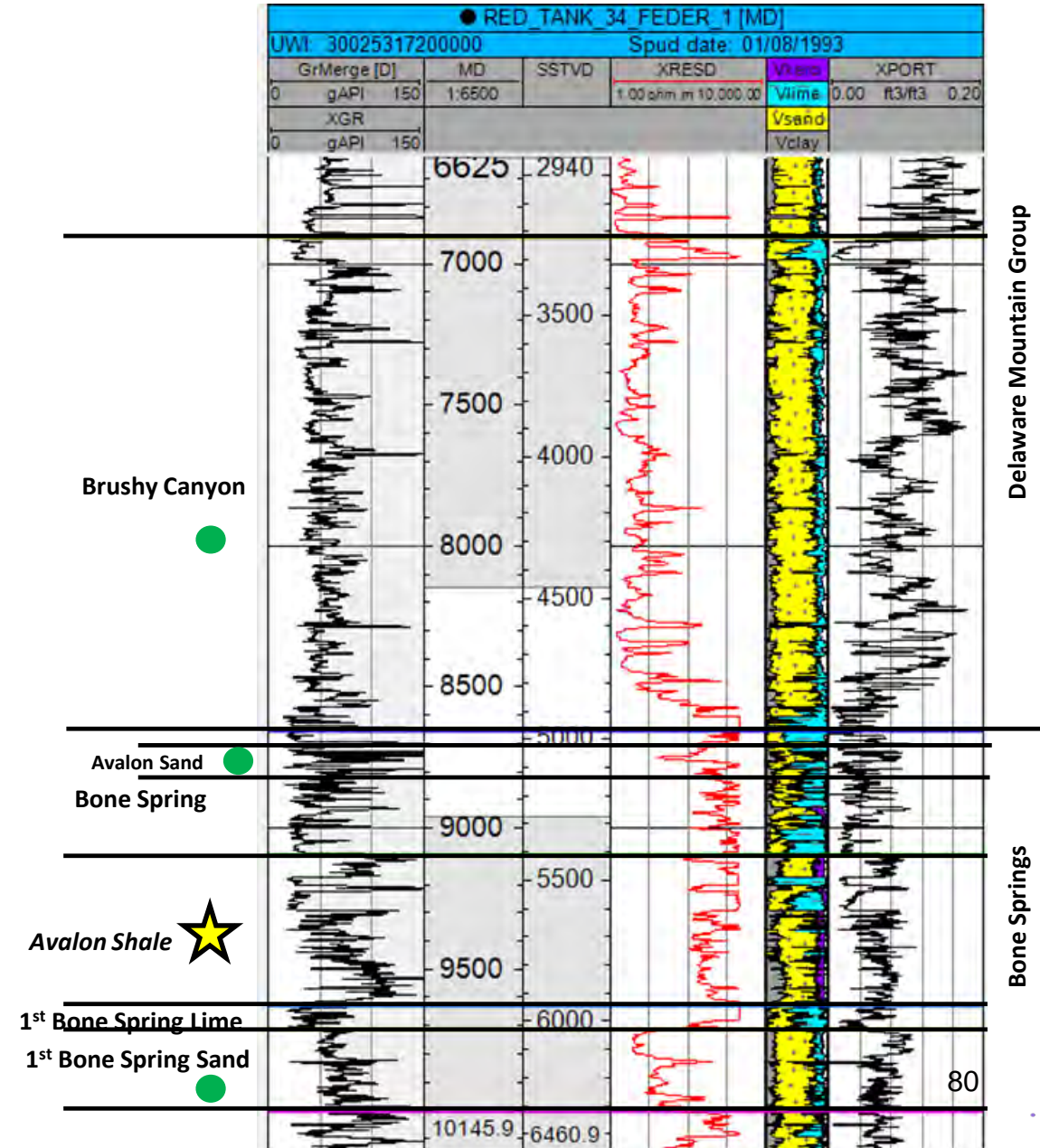
Confining Layers

● Bone Spring

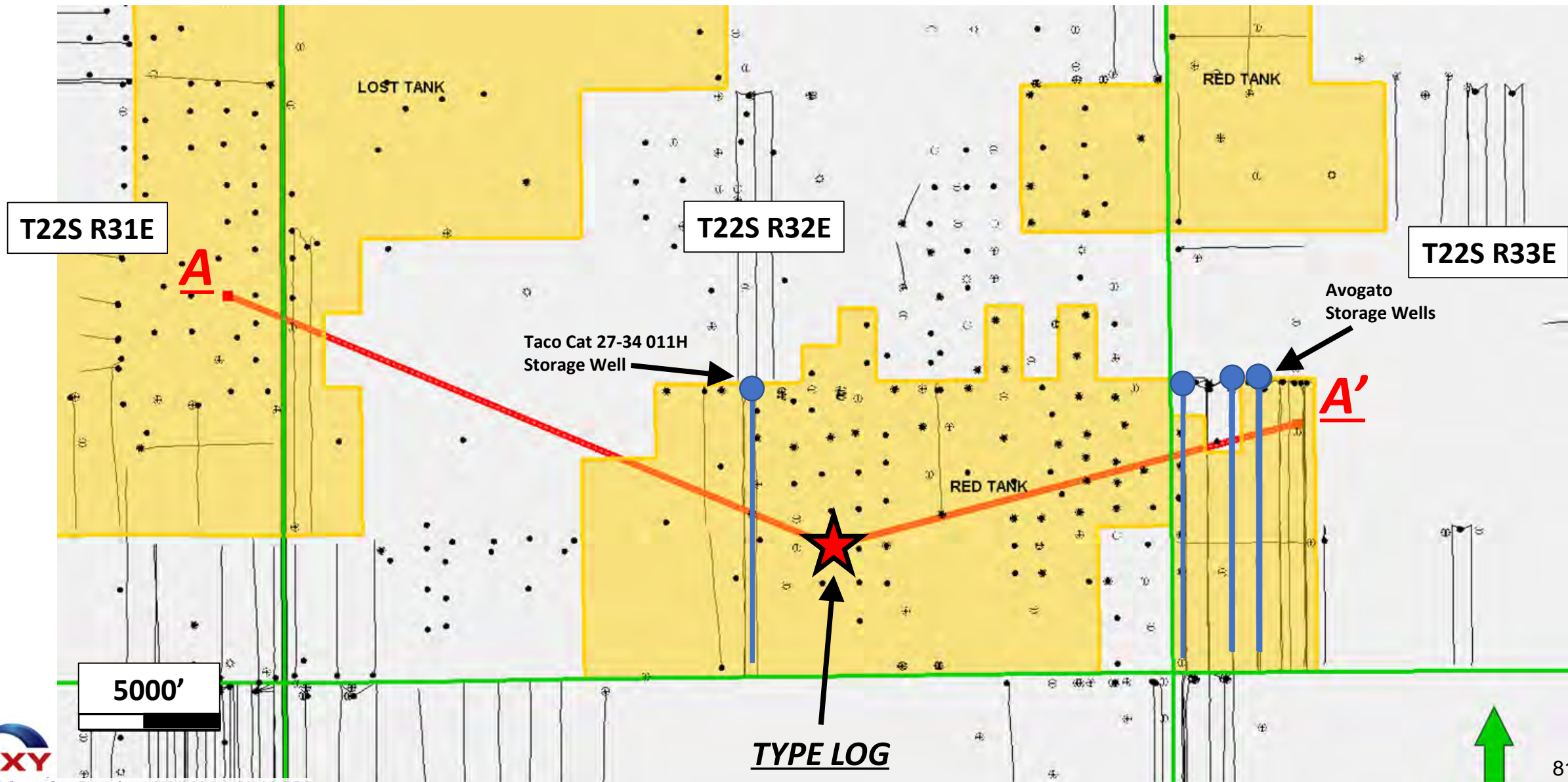
> Approximately 250' of impermeable limestone between Avalon Sand & Brushy Canyon and Avalon Shale

● 1st Bone Spring Lime

> Approximately 100' of impermeable limestone between Avalon Shale and 1st Bone Spring Sand



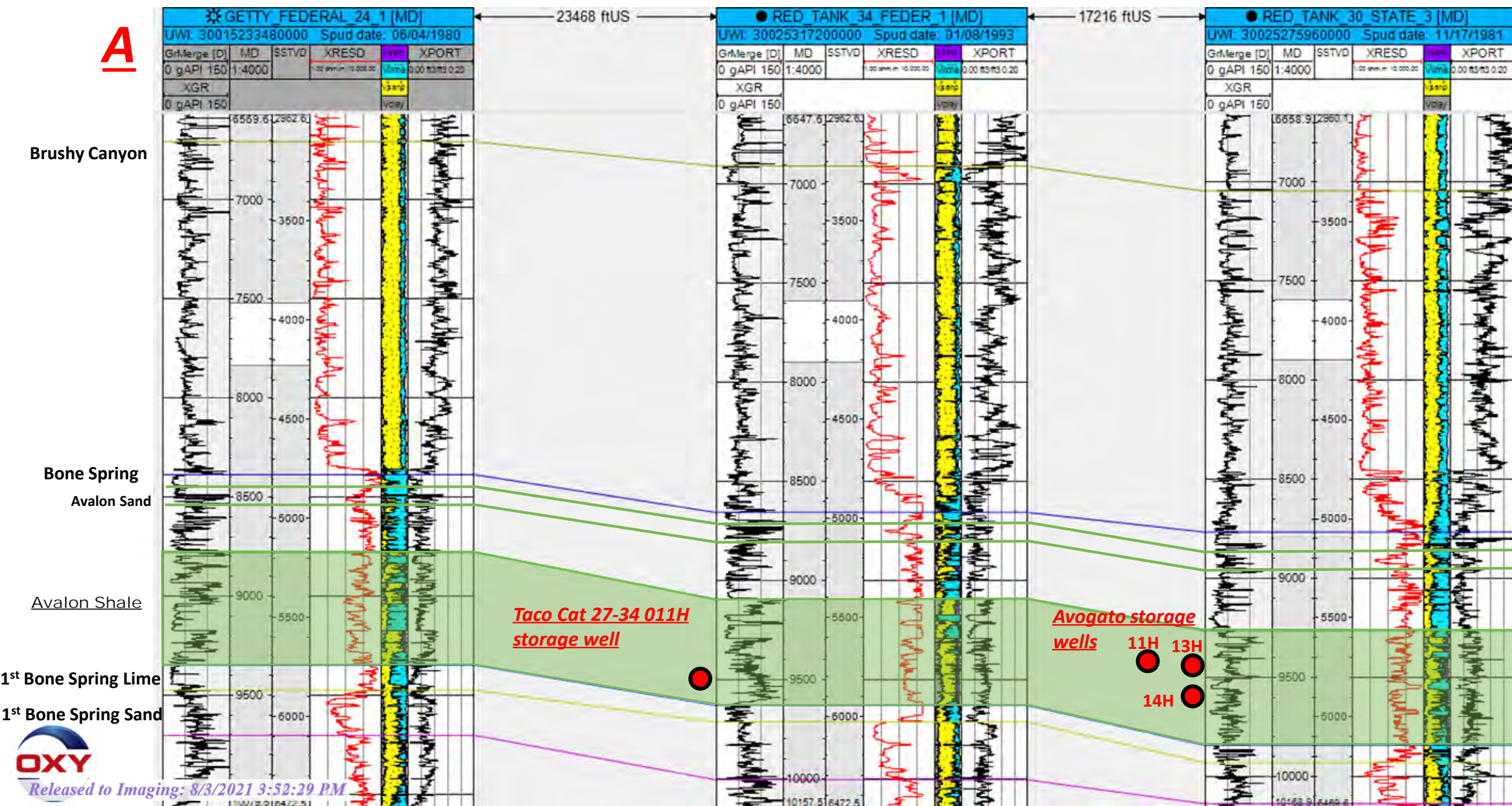
Tanks Cross-section Index Map



Tanks Cross-section

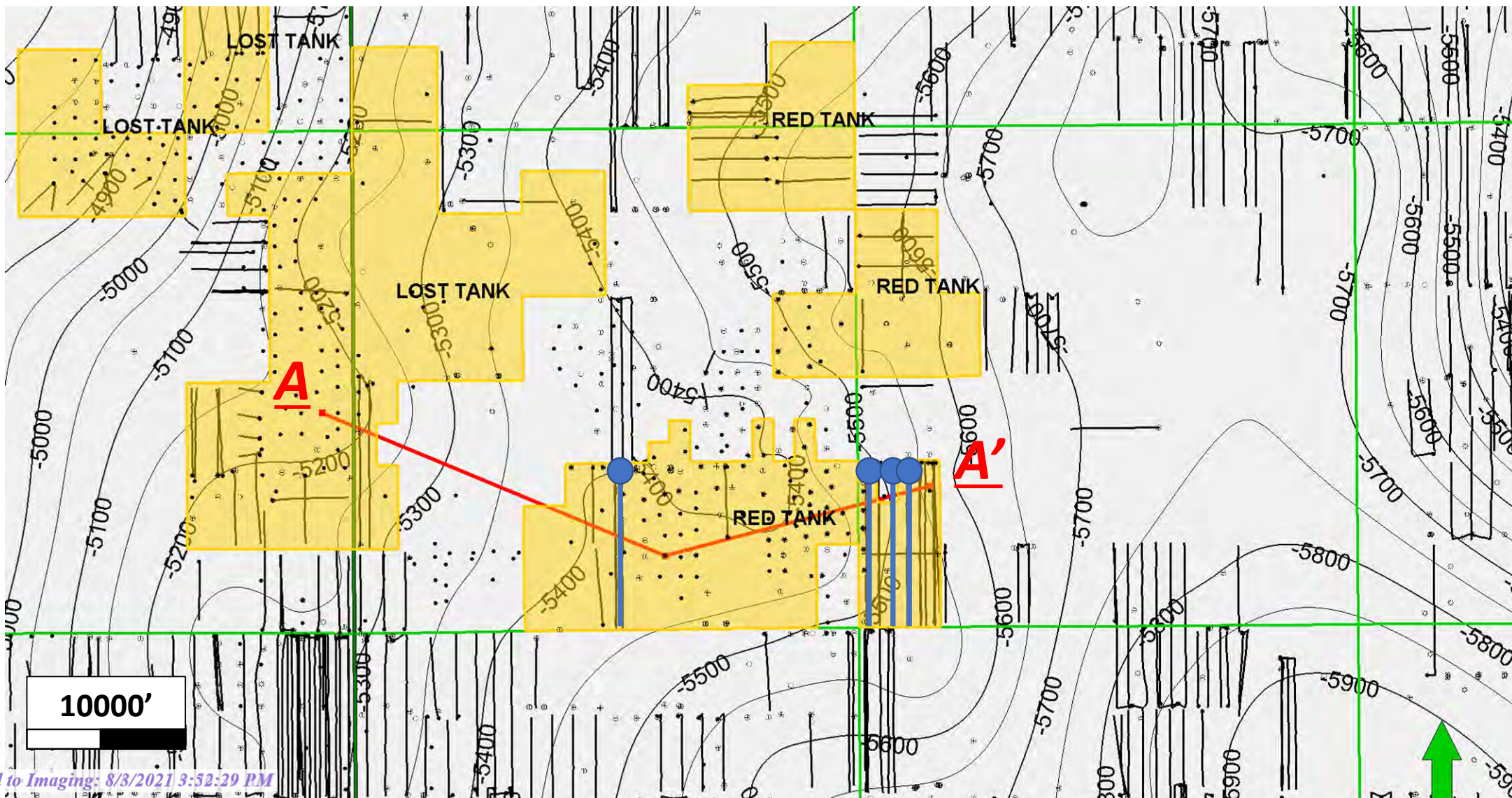
A

A'



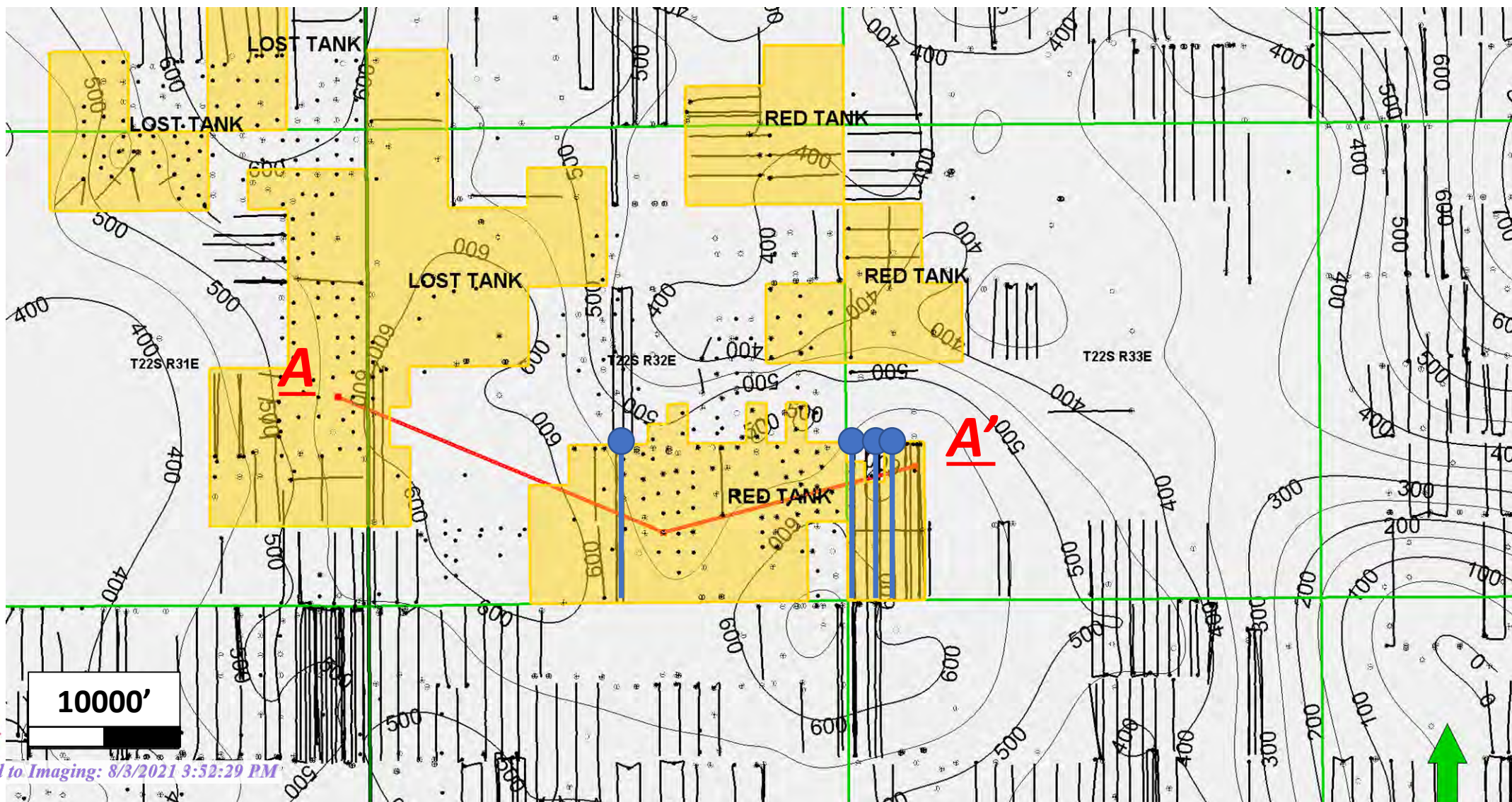
Tanks Structure Map: Top of Avalon

Consistent structural dip to east



Tanks Thickness Map

Northwest-southeast trending layer of Avalon 500-600' in thickness



Geologic Information for Wells injecting into the Avalon member of the Bone Spring Formation

Four wells will be injecting into the Avalon member of the Bone Spring Formation. Two wells have an average TVD of approximately 9,400 ft. (Avogato 30-31 State Com 11H & 13H), one well has an average TVD of approximately 9,500 ft. (Taco Cat 27-34 Fed Com 11H), and one well has an average TVD of approximately 9,600 ft. (Avogato 30-31 State Com 14H). The four wells have lateral lengths of approximately 10,000ft. The Avalon Shale is a very fine-grained quartz-rich and brittle siltstone with alternating cycles of carbonate rich mudstones deposited by gravity flows. Core data and petrophysical analysis indicates a tight reservoir with an average porosity less than 10% and an average permeability in the nano-darcy range. The reservoir has a clay content of 18% on average including illite and smectite. Cements include Fe-calcite, Fe-dolomite, with some quartz overgrowths. Minor amounts of pyrite (<1%) are present.

Low-permeability barriers to fluid flow exist within the Bone Spring Formation above and below the Avalon Shale. Above the Avalon Shale, the Bone Spring Formation consists of fine-grained siltstones, carbonate mudstone and dolomudstone that have very low permeabilities and an average thickness of 250 ft. Below the Avalon Shale is the 1st Bone Spring Lime, a low permeability ~ 100ft thick carbonate rich interval. 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.

Overlying the Bone Springs is the Delaware Mountain Group, which consists of connate-water bearing and hydrocarbon-bearing low permeability and porosity sands, with minor limestone and shale intervals and is approximately 3,900 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 Formation overlies the Castile and consists of 1,000 ft. of impermeable salt. The top of the Salado is at 1,500 ft. TVD (depending on location within the field) 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 approximately 1000 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. Due to the thickness of multiple impermeable rock layers above the injection reservoir there is little possibility 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 active freshwater wells within a two mile radius of these injectors.

Well List:

- Avogato 30-31 State Com 11H (30025459560000)**
- Avogato 30-31 State Com 13H (30025459580000)**
- Avogato 30-31 State Com 14H (30025459590000)**
- Taco Cat 27-34 Fed Com 11H (30025449330000)**

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



Peter Senior, Geologist


6-30-2021

Date


Closed Loop Gas Capture (CLGC) Project

Affirmative Statement 1

The operator examined the available geologic and engineering data and found no evidence of open faults or other hydrologic connections between the disposal zone and any underground source of drinking water.


Peter Senior, Geologist

June 9, 2021
Date


Xueying Xie, Reservoir Engineer

6/9/2021
Date

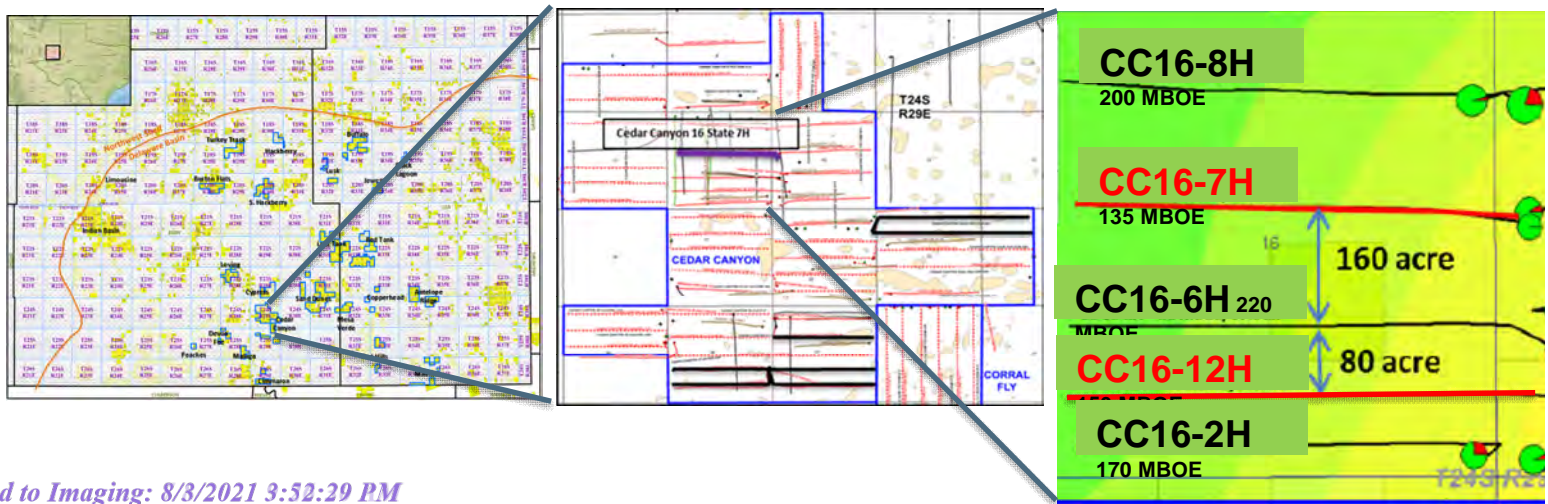
Reservoir Engineering

Project Overview – Avogato & Taco Cat

- Closed loop gas capture project (CLGC) IN Oxy's NM assets
- Produced gas injection into productive formation in NM (Avalon)
- Gas injection into horizontal wells of 10,000 ft lateral length
- Purpose of Modeling
 - > Review potential effects on wells adjacent to the CLGC area
 - > Quantify movement of the injected gas
 - > Utilize data from Cedar Canyon Huff and Puff Projects

Model Set up

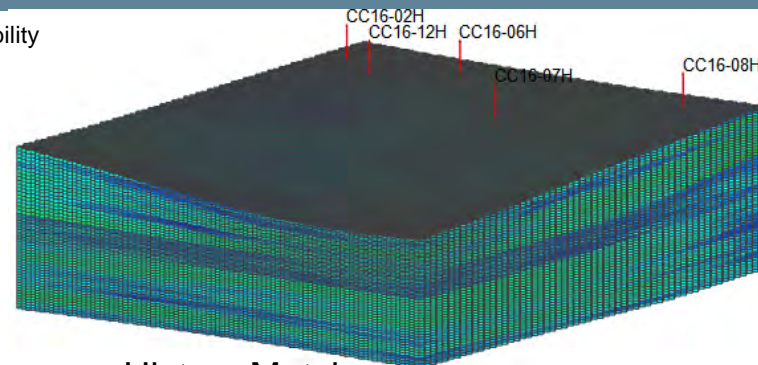
- Uses Cedar Canyon Sec 16 2nd BSS (as shown in layout below)
- Gas Injection pilot (EOR) was implemented in CC16-7H well in 2017
- Reservoir model is history matched for primary production and gas injection pilot
- Model is also tuned to capture injection gas breakthrough in offset wells that was observed during pilot period
- Gas injection pilot wells are 4 wells per section; model is adjusted to simulate the effect of closer wells (6 wps)



Section-16 Reservoir Model

Location: Lea County, NM
 Model Acreage: 640
 Pay Horizon: 2nd Bone Springs Sand
 Lithology: Sandstone interbedded with Limestone
 Trap Type: Stratigraphic
 Nominal Depth: 8400 ft
 Gas Cap (at discovery): No
 Primary Drive Mechanism: Solution Gas Drive

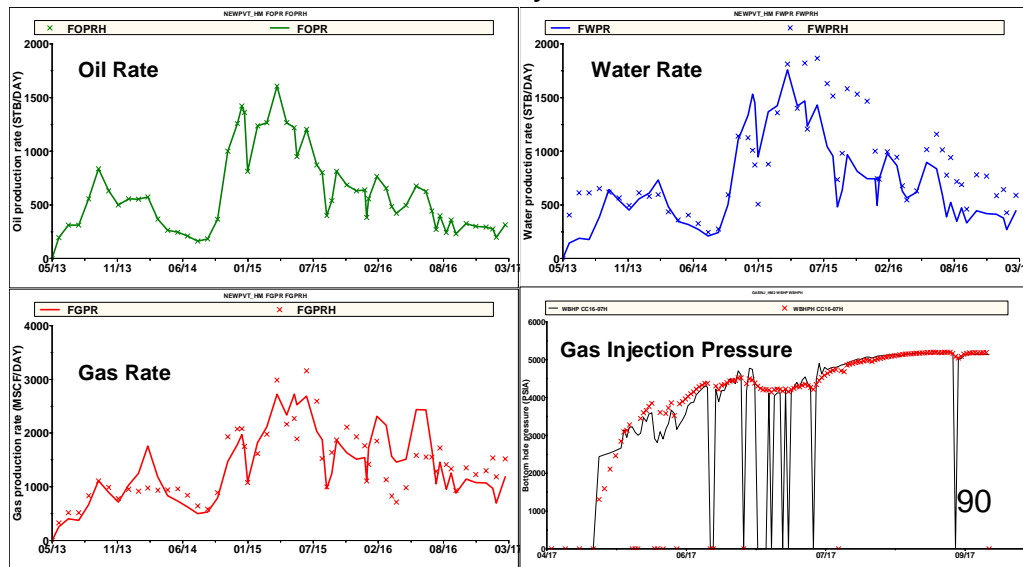
Structure & Permeability
 1,177,400 Grids
 56 Layers



History Match

Gross Pay:	320 ft
Net Pay:	320 ft
Avg Porosity:	6.8%
Initial Sw:	50%
Permeability:	0.001md (matrix)
Initial Reservoir Pressure:	4500 psi
Reservoir Temperature:	150 F
Oil Gravity:	42 API
Boi:	1.63 RB/STB
Rsi:	1480 SCF/STB
Original Oil in Place:	28 MMSTB

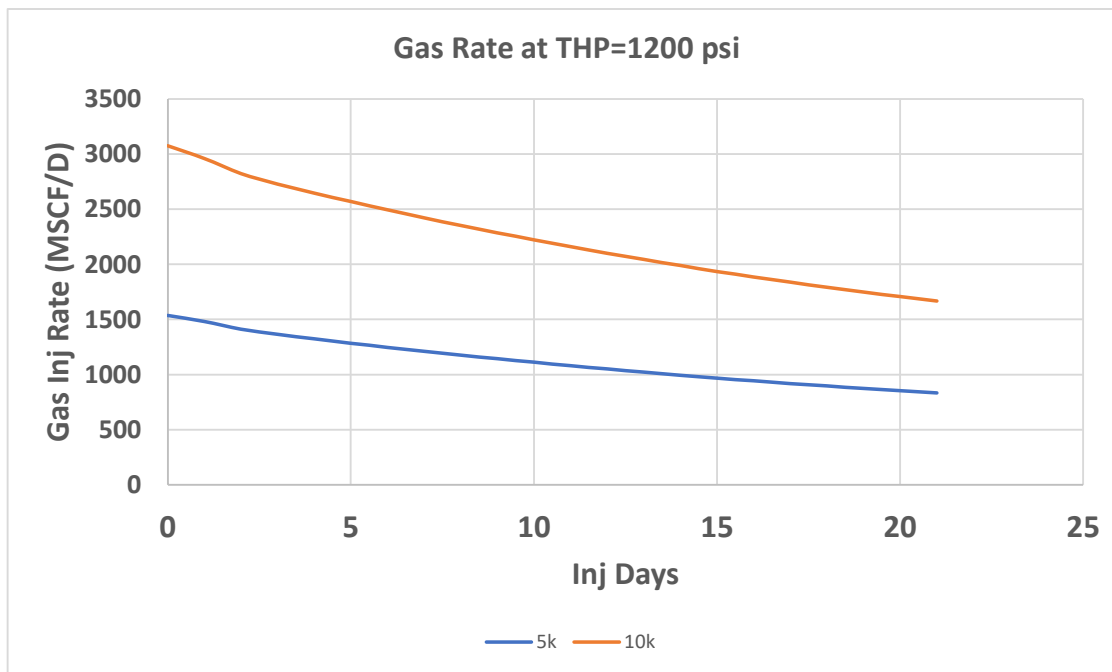
Model Inputs



Gas Storage Simulation Process

- Run primary production for all wells for additional period (post history match) – Base Case
- Inject gas in injection well at 2MMSCFPD for 7 days
- Produce the injection well post injection – Injection Case
- Observe the effect on oil, gas rate/recovery in injection well and offset wells by comparing Base and Injection cases

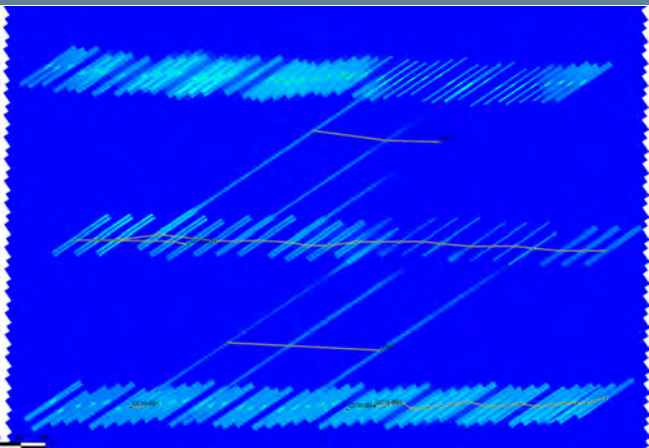
Gas Injection Rates



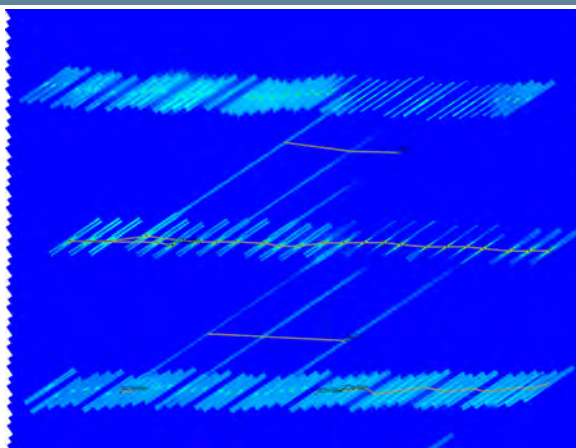
For a 10k well, 3 MMSCFPD is the max injection rate at THP of 1200 psi. Injection rate declines to about 50% of its initial value in 3 weeks. For long injection case a flat injection rate of 3MMSCFPD for 3 weeks is used as worst-case scenario.



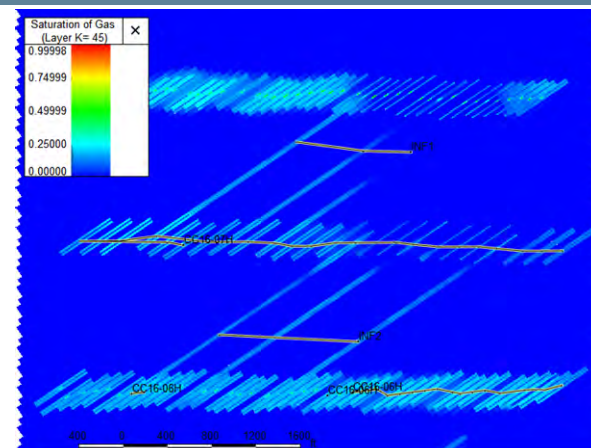
Gas Injection Profile



Before injection

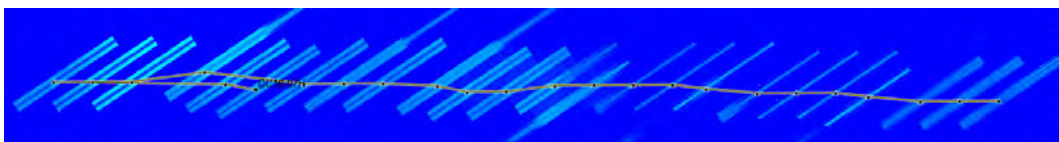


After 1 week of injection (3 MMSCFPD)

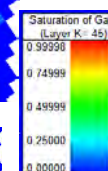
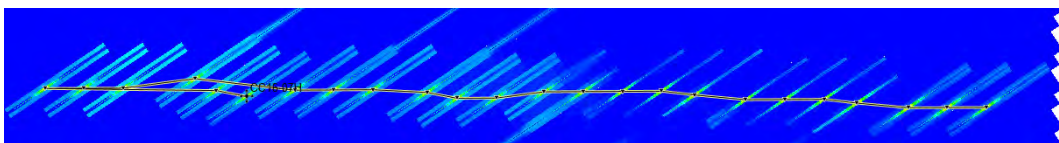


After 16 months production

Before Injection CC16-7H Blow-up



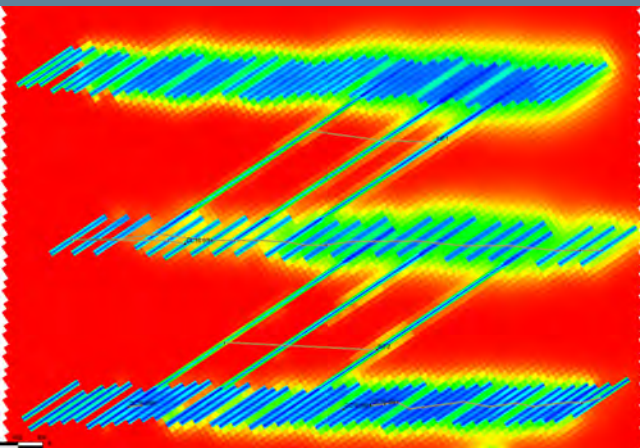
After Injection CC16-7H Blow-up



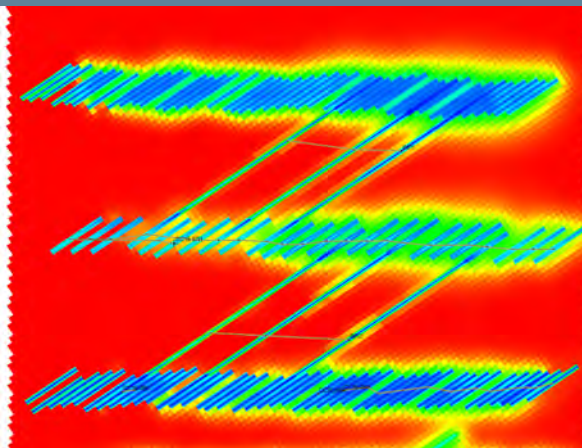
- Gas is stored within fractures.
- All injection cases indicate horizontal gas movement of 100 ft or less into the fractures.



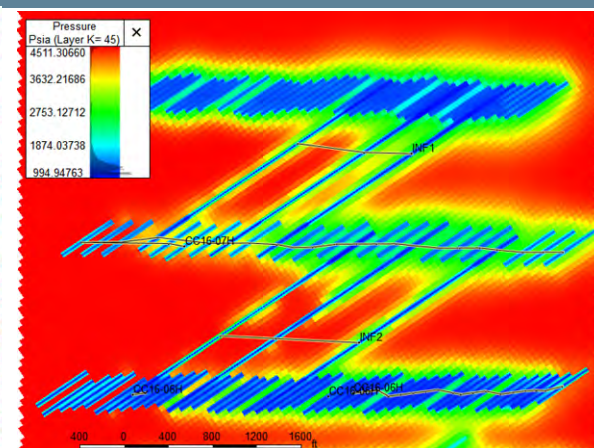
Pressure Profile



Before injection

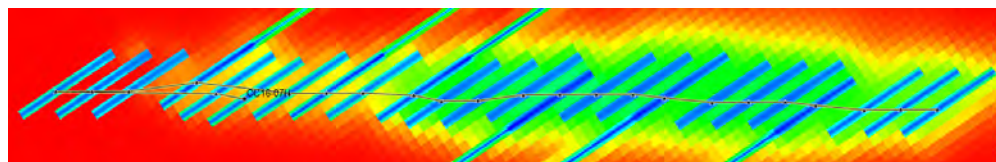


After 1 week of injection (3 MMSCFPD)

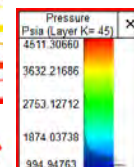
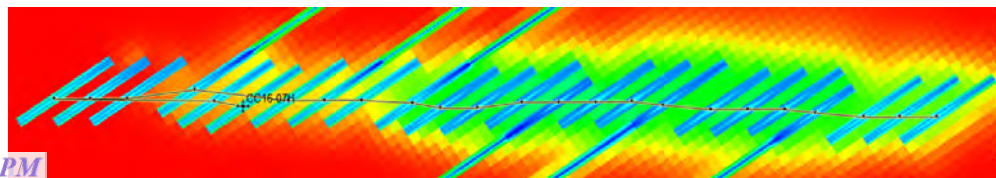


After 16 months production

Before Injection CC16-7H Blow-up



After Injection CC16-7H Blow-up



Summary of Cases

Case	Injection Description*	WPS	Oil recovery effect in injected well (MBO)	Oil recovery effect in offset wells (MBO)	Gas breakthrough in Offset well
1	Single Well	4	No change	No change	No
2	Single Well**	6	No change	No change	No
3	Single Well	8	No change	No change	No
4	Single Well (Multiple injection and production cycles)	6	No change	No change	No
5	Single well***	6	No change	No change	No
6	Multiple Adjacent Wells	4	No change	No change	No
7	Multiple Adjacent Wells	6	No change	No change	No
8	Multiple Adjacent Wells	8	No change	No change	No

*All injection at 2MMSCF/DAY for 7 days except cases 2 and 5

**Injection at 3MMSCF/DAY for 7 days

***Injection at constant surface pressure of 1200 psi for 21 days



Gas Storage Capacities - Tanks

		Gas Storage Capacity with 1200 psi WHP Injection	
API	Well Name	Fracture volume gas equivalent, mmscf	Total prod gas equivalent, mmscf
30025459560000	AVOGATO 30-31 STATE COM 11H	326	1292
30025459580000	AVOGATO 30-31 STATE COM 13H	312	574
30025459590000	AVOGATO 30-31 STATE COM 14H	325	1265
30025449330000	TACO CAT 27 34 FEDERAL COM 11H	339	1377

- Gas storage capacity is high for each well
 - Even just stored gas in fractures, the capacity is over 200 mmscf
- The expected gas injection volume for each well during each event could be up to 60 mmscf, this is way below the storage capacity



Frac Height and SRV – Avogato & Taco Cat

- **Frac height:**
 - **Avalon: Based on Tanks Avogato**
 - **XH= 340'**
 - **Xf = 350'**
- **SRV**
 - **SRV= 2*Xf*Xh*Well length**

API 14	Well Name	SRV, ft ³
30025459560000	AVOGATO-11H	2,375,002,000
30025459580000	AVOGATO-13H	2,327,878,000
30025459590000	AVOGATO-14H	2,423,078,000
30025449330000	TACO2734-11H	2,421,888,000

Closed Loop Gas Capture (CLGC) Project

Affirmative Statement 2

The operator examined the available geologic and engineering data and determined 1) the total recoverable volume of hydrocarbons from the reservoir will not be adversely affected by the project and 2) the gas composition will not damage the reservoir.

Xueying Xie

6/9/2021

Xueying Xie, Reservoir Engineer

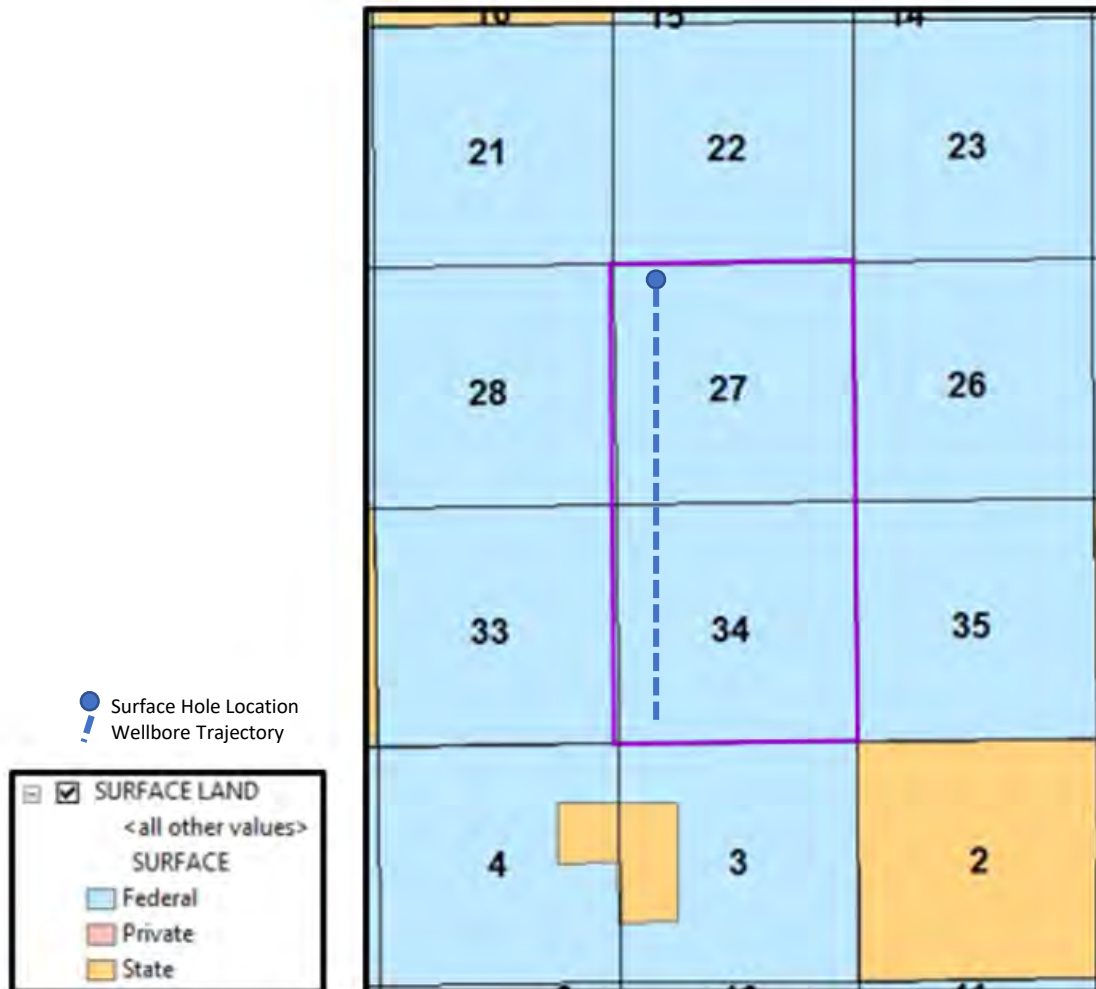
Date

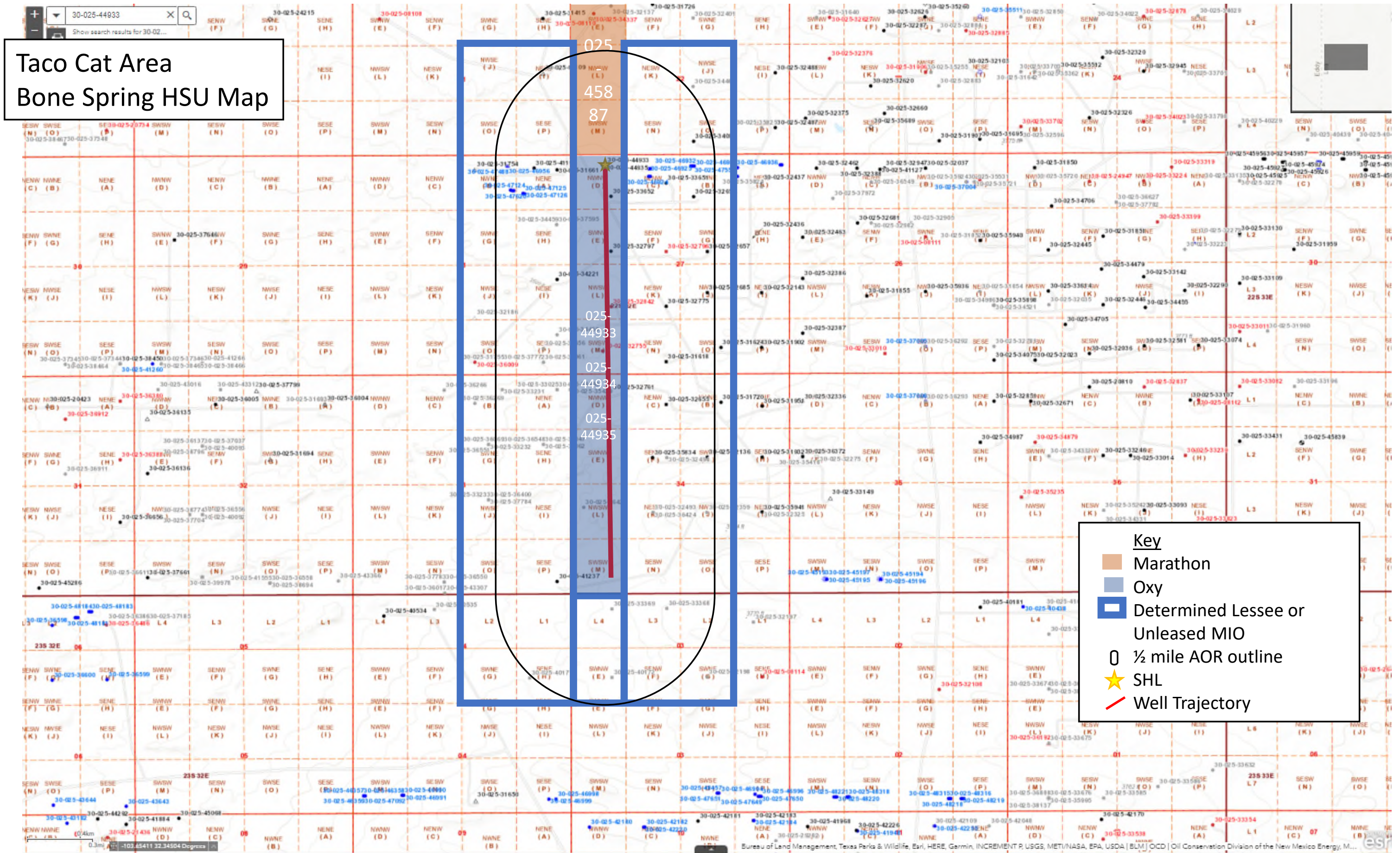
Notice

Surface Land Ownership

Taco Cat Area

Avogato Area





Taco Cat Area
Bone Spring HSU Map

Key

- Marathon
- Oxy
- Determined Lessee or Unleased MIO
- 1/2 mile AOR outline
- SHL
- Well Trajectory

Avogato Area Bone Spring HSU Map

Legend

Oil and Gas Wells

- Wells - Large Scale
- 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
- Water, Plugged
- Water, Temporarily Abandoned
- undefined

OCD Districts and Offices

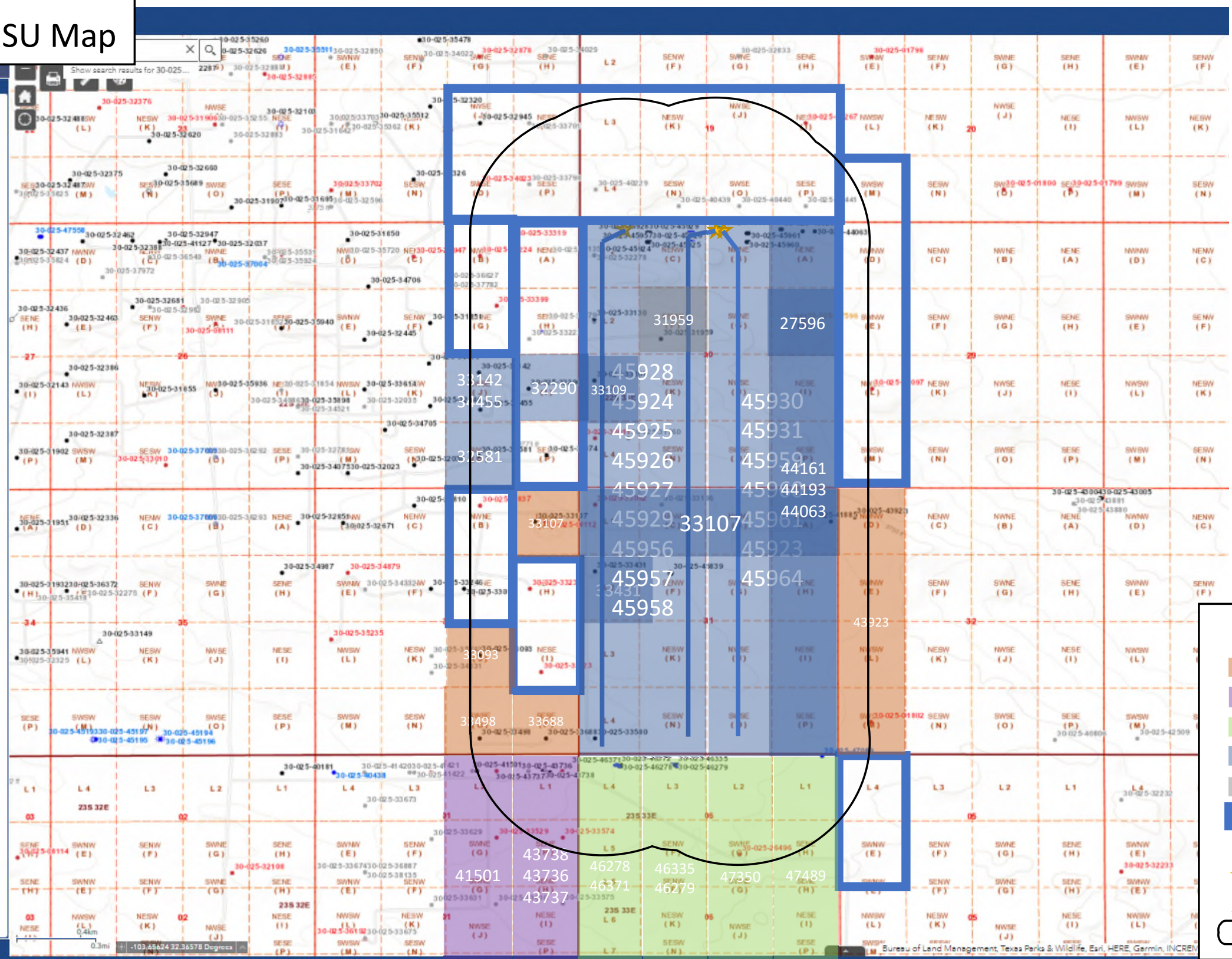
OCD District Offices

Public Land Survey System

PLSS Townships

PLSS Second Division

PLSS First Division



Key

- EOG
- Cimarex
- Matador
- Oxy
- Wagner Oil Co
- Determined Lessee or unleased MIO
- SHL
- Wellbore Trajectory
- 1/2 Mile AOR

Taco Cat Area Notice List

Name	Street	City	State	Zip Code	Merged
Surface Owners					
BLM	620 E. Greene St.	Carlsbad	NM	88220	BLM 620 E. Greene St. Carlsbad, NM 88220
Leasehold Operators					
CIMAREX ENERGY CO.	600 N. Marienfield St. Suite 600	Midland	TX	79701	CIMAREX ENERGY CO. 600 N. Marienfield St. Suite 600 Midland, TX 79701
Marathon Oil Permian LLC	5555 San Felipe St.	Houston	TX	77056	Marathon Oil Permian LLC 5555 San Felipe St. Houston, TX 77056
Affected Persons					
XTO Holdings LLC	P.O. Box 840780	Dallas	TX	75284	XTO Holdings LLC P.O. Box 840780 Dallas, TX 75284
Marathon Oil Permian LLC	5555 San Felipe St.	Houston	TX	77056	Marathon Oil Permian LLC 5555 San Felipe St. Houston, TX 77056
A.J. Losee	Box 1720	Artesia	NM	88211	A.J. Losee Box 1720 Artesia, NM 88211
Anne Ransome-Losee	3505 Calle Cuervo #218	Albuquerque	NM	87048	Anne Ransome-Losee 3505 Calle Cuervo #218 Albuquerque, NM 87048
Arthur Dow	324 Yucca Dr. NW	Albuquerque	NM	87105	Arthur Dow 324 Yucca Dr. NW Albuquerque, NM 87105
Black Mountain Operating LLC	500 Main St Ste 1200	Fort Worth	TX	76102	Black Mountain Operating LLC 500 Main St Ste 1200 Fort Worth, TX 76102
Bradley S. Bates	2400 N. Pecos St.	Midland	TX	79705	Bradley S. Bates 2400 N. Pecos St. Midland, TX 79705
Buckeye Energy Inc.	P.O. Box 3788	Midland	TX	79702	Buckeye Energy Inc. P.O. Box 3788 Midland, TX 79702
Burlington Resources Oil & Gas Co LP	P.O. Box 51810	Midland	TX	79710	Burlington Resources Oil & Gas Co LP P.O. Box 51810 Midland, TX 79710
C. W. Trainer	P.O. Box 3788	Midland	TX	79702	C. W. Trainer P.O. Box 3788 Midland, TX 79702
Carmine Scarcelli	2111 Wellington Ct.	Midland	TX	79705	Carmine Scarcelli 2111 Wellington Ct. Midland, TX 79705

Carrie A. Haydel	149 14th St.	New Orleans	LA	70124	Carrie A. Haydel 149 14th St. New Orleans, LA 70124
Chevron USA Inc.	1400 Smith St.	Houston	TX	77002	Chevron USA Inc. 1400 Smith St. Houston, TX 77002
Cimarex Energy Company of Colorado	600 N. Marienfield St. Suite 600	Midland	TX	79701	Cimarex Energy Company of Colorado 600 N. Marienfield St. Suite 600 Midland, TX 79701
Devon Energy Production Company LP	333 W. Sheridan Ave	Oklahoma City	OK	73102	Devon Energy Production Company LP 333 W. Sheridan Ave Oklahoma City, OK 73102
Diance C. Prince	816 Connecticut Ave NW	Washington	DC	20006	Diance C. Prince 816 Connecticut Ave NW Washington, DC 20006
Elizabeth Losee	328 Sierra Pl.	Albuquerque	NM	87108	Elizabeth Losee 328 Sierra Pl. Albuquerque, NM 87108
EOG Resources Inc.	P.O. Box 840321	Dallas	TX	75284	EOG Resources Inc. P.O. Box 840321 Dallas, TX 75284
Frederick Prince IV	816 Connecticut Ave NW	Washington	DC	20006	Frederick Prince IV 816 Connecticut Ave NW Washington, DC 20006
Highpoint Operating Corp.	216 16th St. Ste 1100	Denver	CO	80202	Highpoint Operating Corp. 216 16th St. Ste 1100 Denver, CO 80202
Jesus Salazar Family LP	2400 Rose NW	Albuquerque	NM	87104	Jesus Salazar Family LP 2400 Rose NW Albuquerque, NM 87104
John Blackburn	P.O. Box 340535	Austin	TX	78734	John Blackburn P.O. Box 340535 Austin, TX 78734
Kent H. Berger	203 W. Wall St. #612	Midland	TX	79701	Kent H. Berger 203 W. Wall St. #612 Midland, TX 79701
Lewis O. Campell	8111 Lamp Post Cir SE	Albuquerque	NM	87123	Lewis O. Campell 8111 Lamp Post Cir SE Albuquerque, NM 87123
Losee Investments	P.O. Box 1720	Artesia	NM	88211	Losee Investments P.O. Box 1720 Artesia, NM 88211
Lynn S. Charulk	2401 Stutz Pl.	Midland	TX	79705	Lynn S. Charulk 2401 Stutz Pl. Midland, TX 79705
Mackenroth Interests LLC	3601 N. I-40 Service Rd.	West Martairie	LA	70002	Mackenroth Interests LLC 3601 N. I-40 Service Rd. West Martairie, LA 70002

Mcnic O&G Properties	1360 Post Oak Blvd	Houston	TX	77056	Mcnic O&G Properties 1360 Post Oak Blvd Houston, TX 77056
PBEX Resources	223 W. Wall St. Ste 900	Midland	TX	79701	PBEX Resources 223 W. Wall St. Ste 900 Midland, TX 79701
Penwell Energy Inc.	600 N. Marienfield St. Suite 1100	Midland	TX	79701	Penwell Energy Inc. 600 N. Marienfield St. Suite 1100 Midland, TX 79701
PXP Producing LLC	717 Texas St Ste #2100	Houston	TX	77002	PXP Producing LLC 717 Texas St Ste #2100 Houston, TX 77002
Robert M. Dow Revocable Trust	5136 Lomas De Artisto Rd NW	Albuquerque	NM	87105	Robert M. Dow Revocable Trust 5136 Lomas De Artisto Rd NW Albuquerque, NM 87105
Sealy Hutchings Cavin Inc.	504 N Wyoming Ave	Roswell	NM	88201	Sealy Hutchings Cavin Inc. 504 N Wyoming Ave Roswell, NM 88201
South Highway 14 Bus Co	324 Yucca Dr. NW	Albuquerque	NM	87105	South Highway 14 Bus Co 324 Yucca Dr. NW Albuquerque, NM 87105
Southwest Royalties Inc	6 Desta Dr. Ste 3700	Midland	TX	79705	Southwest Royalties Inc 6 Desta Dr. Ste 3700 Midland, TX 79705
Strata Production Co	P.O Box 1030	Roswell	NM	88292	Strata Production Co P.O Box 1030 Roswell, NM 88292
The Gray Exploration Co	3601 N. I-40 Service Rd.	West Martairie	LA	70002	The Gray Exploration Co 3601 N. I-40 Service Rd. West Martairie, LA 70002
The Ninety-Six Corp	550 W. Texas #1225	Midland	TX	79701	The Ninety-Six Corp 550 W. Texas #1225 Midland, TX 79701
Trainer Partners LTD	P.O. Box 3788	Midland	TX	79702	Trainer Partners LTD P.O. Box 3788 Midland, TX 79702
XTO Energy Inc.	22777 Springwoods Village Pkwy	Spring	TX	77389	XTO Energy Inc. 22777 Springwoods Village Pkwy Spring, TX 77389
XTO Holdings LLC	22777 Springwoods Village Pkwy	Spring	TX	77389	XTO Holdings LLC 22777 Springwoods Village Pkwy Spring, TX 77389
XTO Holdings LLC	P.O. Box 840780	Dallas	TX	75284	XTO Holdings LLC P.O. Box 840780 Dallas, TX 75284
POGO PRODUCING CO.	P.O. Box 10340	Midland	TX	79702	POGO PRODUCING CO. P.O. Box 10340 Midland, TX 79702

Avogato Area Notice List

Name	Street	City	State	Zip Code	Merged
Surface Owners					
State Land Office	308 Old Santa Fe Trail	Santa Fe	NM	87501	State Land Office 308 Old Santa Fe Trail Santa Fe, NM 87501
Leasehold Operators					
CIMAREX ENERGY CO.	600 N. Marienfield St. Suite 600	Midland	TX	79701	CIMAREX ENERGY CO. 600 N. Marienfield St. Suite 600 Midland, TX 79701
EOG Resources Inc.	P.O. Box 2267	Midland	TX	79702	EOG Resources Inc. P.O. Box 2267 Midland, TX 79702
Matador Production Company	5400 LBJ Freeway Ste 1500	Dallas	TX	75240	Matador Production Company 5400 LBJ Freeway Ste 1500 Dallas, TX 75240
Wagner Oil Co	500 Commerce Suite 500	Fort Worth	TX	76102	Wagner Oil Co 500 Commerce Suite 500 Fort Worth, TX 76102
Affected Persons					
1 Timothy 6 LLC	P.O. Box 30598	Edmond	OK	73003	1 Timothy 6 LLC P.O. Box 30598 Edmond, OK 73003
2019 Permian Basin JV	P.O. Box 10	Folosom	LA	70437	2019 Permian Basin JV P.O. Box 10 Folosom, LA 70437
Accelerate Resources Operating LLC	5949 Sherry Ln.	Dallas	TX	75225	Accelerate Resources Operating LLC 5949 Sherry Ln. Dallas, TX 75225
C.D. Martin	P.O. Box 12	Midland	TX	79702	C.D. Martin P.O. Box 12 Midland, TX 79702
Cal-Mon Oil Company	200 N. Loraine St. Ste 1404	Midland	TX	79701	Cal-Mon Oil Company 200 N. Loraine St. Ste 1404 Midland, TX 79701
Campeche Petro LP	500 Commerce St. Ste 600	Fort Worth	TX	76102	Campeche Petro LP 500 Commerce St. Ste 600 Fort Worth, TX 76102
Cardinal Plastics	P.O. Box 935	Odessa	TX	79760	Cardinal Plastics P.O. Box 935 Odessa, TX 79760

Conrad E. Coffield	P.O. Box 8028	Santa Fe	NM	87504	Conrad E. Coffield P.O. Box 8028 Santa Fe, NM 87504
EOG Resources Inc.	P.O. Box 840321	Dallas	TX	75284	EOG Resources Inc. P.O. Box 840321 Dallas, TX 75284
Kastman Oil Company	P.O. Box 5930	Lubbock	TX	79408	Kastman Oil Company P.O. Box 5930 Lubbock, TX 79408
Lonsdale Resources LLC	2626 Cole Ave Ste 300	Dallas	TX	75204	Lonsdale Resources LLC 2626 Cole Ave Ste 300 Dallas, TX 75204
Maduro Oil & Gas LLC	3102 Maple Avenue Suite 400	Dallas	TX	75201	Maduro Oil & Gas LLC 3102 Maple Avenue Suite 400 Dallas, TX 75201
SDS Properties Inc.	P.O. Box 246	Roswell	NM	88202	SDS Properties Inc. P.O. Box 246 Roswell, NM 88202
Silverstone Resources Inc.	P.O. Box 41270	Reno	NV	89504	Silverstone Resources Inc. P.O. Box 41270 Reno, NV 89504
Tocor Investments Inc.	P.O. Box 293	Midland	TX	79702	Tocor Investments Inc. P.O. Box 293 Midland, TX 79702
A.J. Losee	Box 1720	Artesia	NM	88211	A.J. Losee Box 1720 Artesia, NM 88211
Anne Ransome-Losee	3505 Calle Cuervo #218	Albuquerque	NM	87048	Anne Ransome-Losee 3505 Calle Cuervo #218 Albuquerque, NM 87048
Arthur Dow	324 Yucca Dr. NW	Albuquerque	NM	87105	Arthur Dow 324 Yucca Dr. NW Albuquerque, NM 87105
Bradley S. Bates	2400 N. Pecos St.	Midland	TX	79705	Bradley S. Bates 2400 N. Pecos St. Midland, TX 79705
Buckeye Energy Inc.	P.O. Box 3788	Midland	TX	79702	Buckeye Energy Inc. P.O. Box 3788 Midland, TX 79702
Burlington Resources Oil & Gas Co LP	P.O. Box 51810	Midland	TX	79710	Burlington Resources Oil & Gas Co LP P.O. Box 51810 Midland, TX 79710
C. W. Trainer	P.O. Box 3788	Midland	TX	79702	C. W. Trainer P.O. Box 3788 Midland, TX 79702

Carmine Scarcelli	2111 Wellington Ct.	Midland	TX	79705	Carmine Scarcelli 2111 Wellington Ct. Midland, TX 79705
Carrie A. Haydel	149 14th St.	New Orleans	LA	70124	Carrie A. Haydel 149 14th St. New Orleans, LA 70124
Devon Energy Production Company LP	333 W. Sheridan Ave	Oklahoma City	OK	73102	Devon Energy Production Company LP 333 W. Sheridan Ave Oklahoma City, OK 73102
Diance C. Prince	816 Connecticut Ave NW	Washington	DC	20006	Diance C. Prince 816 Connecticut Ave NW Washington, DC 20006
Elizabeth Losee	328 Sierra Pl.	Albuquerque	NM	87108	Elizabeth Losee 328 Sierra Pl. Albuquerque, NM 87108
EOG Resources Inc.	P.O. Box 840321	Dallas	TX	75284	EOG Resources Inc. P.O. Box 840321 Dallas, TX 75284
Frederick Prince IV	816 Connecticut Ave NW	Washington	DC	20006	Frederick Prince IV 816 Connecticut Ave NW Washington, DC 20006
Jesus Salazar Family LP	2400 Rose NW	Albuquerque	NM	87104	Jesus Salazar Family LP 2400 Rose NW Albuquerque, NM 87104
John Blackburn	P.O. Box 340535	Austin	TX	78734	John Blackburn P.O. Box 340535 Austin, TX 78734
Kent H. Berger	203 W. Wall St. #612	Midland	TX	79701	Kent H. Berger 203 W. Wall St. #612 Midland, TX 79701
Lewis O. Campell	8111 Lamp Post Cir SE	Albuquerque	NM	87123	Lewis O. Campell 8111 Lamp Post Cir SE Albuquerque, NM 87123
Losee Investments	P.O. Box 1720	Artesia	NM	88211	Losee Investments P.O. Box 1720 Artesia, NM 88211
Lynn S. Charulk	2401 Stutz Pl.	Midland	TX	79705	Lynn S. Charulk 2401 Stutz Pl. Midland, TX 79705
Mackenroth Interests LLC	3601 N. I-40 Service Rd.	West Martairie	LA	70002	Mackenroth Interests LLC 3601 N. I-40 Service Rd. West Martairie, LA 70002

Mcnic O&G Properties	1360 Post Oak Blvd	Houston	TX	77056	Mcnic O&G Properties 1360 Post Oak Blvd Houston, TX 77056
PBEX Resources	223 W. Wall St. Ste 900	Midland	TX	79701	PBEX Resources 223 W. Wall St. Ste 900 Midland, TX 79701
Penwell Energy Inc.	600 N. Marienfield St. Suite 1100	Midland	TX	79701	Penwell Energy Inc. 600 N. Marienfield St. Suite 1100 Midland, TX 79701
PXP Producing LLC	717 Texas St Ste #2100	Houston	TX	77002	PXP Producing LLC 717 Texas St Ste #2100 Houston, TX 77002
Robert M. Dow Revocable Trust	5136 Lomas De Artista Rd NW	Albuquerque	NM	87105	Robert M. Dow Revocable Trust 5136 Lomas De Artista Rd NW Albuquerque, NM 87105
South Highway 14 Bus Co	324 Yucca Dr. NW	Albuquerque	NM	87105	South Highway 14 Bus Co 324 Yucca Dr. NW Albuquerque, NM 87105
Southwest Royalties Inc	6 Desta Dr. Ste 3700	Midland	TX	79705	Southwest Royalties Inc 6 Desta Dr. Ste 3700 Midland, TX 79705
The Gray Exploration Co	3601 N. I-40 Service Rd.	West Martairie	LA	70002	The Gray Exploration Co 3601 N. I-40 Service Rd. West Martairie, LA 70002
The Ninety-Six Corp	550 W. Texas #1225	Midland	TX	79701	The Ninety-Six Corp 550 W. Texas #1225 Midland, TX 79701
Trainer Partners LTD	P.O. Box 3788	Midland	TX	79702	Trainer Partners LTD P.O. Box 3788 Midland, TX 79702
LIME ROCK RESOURCES A, L.P.	1111 Bagby Street Suite 4600	Houston	TX	77002	LIME ROCK RESOURCES A, L.P. 1111 Bagby Street Suite 4600 Houston, TX 77002
POGO PRODUCING CO.	P.O. Box 10340	Midland	TX	79702	POGO PRODUCING CO. P.O. Box 10340 Midland, TX 79702
POGO PRODUCING COMPANY LLC	700 Milliam Suite 1300	Houston	TX	77002	POGO PRODUCING COMPANY LLC 700 Milliam Suite 1300 Houston, TX 77002

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

APPLICATION OF OXY USA INC. FOR A
CLOSED LOOP GAS CAPTURE INJECTION
PILOT PROJECT, LEA COUNTY, NEW
MEXICO.

CASE NO. 22088

AFFIDAVIT OF STEPHEN JANACEK

I, Stephen Janacek, of lawful age and being first duly sworn, declare as follows:

1. My name is Stephen Janacek and I am employed by OXY USA Inc. ("OXY") as a petroleum engineer.

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

3. I am familiar with the application filed by OXY in this case, and the Division guidance and requirements regarding closed loop gas capture injection projects (CLGC Project) such as this one. I also prepared exhibits in support of this application from pages 3 through 77 in *Exhibit A* to OXY's application, and as Exhibit A.

4. I am familiar with the application filed by OXY in this case, and the Division guidance and requirements regarding closed loop gas capture injection projects such as this one. I also prepared exhibits in support of this application from pages 3-6, 10-32, 39-53, 55, 57-61, 66-78, and 99-109 in *Exhibit A* to OXY's application and as Exhibit A.

5. In this case, OXY seeks an order approving the proposed 1,280-acre, more or less, project area for a pilot project consisting of all of Sections 30 and 31, Township 22 South, Range 33 East, NMPM, Lea County, New Mexico. See *Exhibit A* to the Application, at 5. The proposed

BEFORE THE OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Exhibit No. B
Submitted by: OXY USA INC.
Hearing Date: August 05, 2021
Case No. 22088

project area is part of a larger area referred to as the Tanks area. A locator map identifying the general location of OXY's proposed Avogato CLGC Project is included in *Exhibit A* at page 5.

6. OXY requests an initial project duration of five years to coincide with mechanical integrity tests every five years. OXY also requests the ability to administratively extend the project without the need for a hearing.

7. Within the proposed project area, OXY seeks authority to utilize the following producing wells to occasionally inject produced gas into the Bone Spring formation [Red Tank; Bone Spring, East Pool (Pool Code 51687)], as identified on the project locator map, included at page 5 of Exhibit A:

- The **Avogato 30_31 State Com #11H well** (API No. 30-025-45956), with a surface location 160 feet FNL and 885 feet FWL (Lot 1) in Section 30, and a bottom hole location 50 feet FSL and 600 feet FWL (Lot 4) in Section 31.
- The **Avogato 30_31 State Com #13H well** (API No. 30-025-45958), with a surface location 160 feet FNL and 2375 feet FEL (Unit B) in Section 30, and a bottom hole location 17 feet FSL and 2905 feet FEL (Unit N) in Section 31.
- The **Avogato 30_31 State Com #14H well** (API No. 30-025-45959), with a surface location 160 feet FNL and 2340 feet FEL (Unit B) in Section 30, and a bottom hole location 23 feet FSL and 1957 feet FEL (Unit O) in Section 31.

8. Injection along the horizontal portion of the wellbores will be at the following approximate true vertical depths:

- The Avogato 30_31 State Com #11H well: between 9,332 feet and 9,432 feet.
- The Avogato 30_31 State Com #13H well: between 9,396 feet and 9,397 feet.
- The Avogato 30_31 State Com #14H well: between 9,488 feet and 9,540 feet.

9. A summary overview of the pilot project is located at pages 3-4 of *Exhibit A*.
10. A process flow diagram of the closed loop gas capture system is in the Attached *Exhibit A* at page 6. This diagram reflects the current and proposed system to be used for gas storage. OXY will utilize the existing gas lift infrastructure so no changes are shown. During normal operations, produced fluids flow from the wells down the green flowline to the Red Tank 19 Central Tank Battery (CTB). The source wells, which consist of all wells connected to the CTB, produce from the Bone Spring and Wolfcamp formations. Oil, water, and gas are separated out and leave the central tank battery. Oil is sold through the Lease Automatic Custody Transfer (LACT) at the CTB, water is sent to a disposal well, and gas enters the red, Low Pressure Gas Pipeline. Gas can then be sold to the DCP Primary Gas Takeaway, flared, or flow to the Centralized Gas Lift (CGL) Stations for compression and re-injection as gas lift gas. After the gas goes through the CGL Stations, the pressure increases to a maximum of 1250 psig in the orange Centralized Gas Lift (CGL) Pipeline. Then it flows back to the wells with gas lift systems. The flow of fluids is similar yet different during a gas storage event. A gas storage event is initiated when gas cannot be sold to DCP and the source wells are not shut-in. The major changes are to the DCP Primary Gas Takeaway (which ceases taking gas) and the CLGC wells (which cease producing and become CLGC wells). Since gas cannot be sold, it will begin to build up in the Low-Pressure Gas Pipeline as wells continue to produce oil, water, and gas. Once the pressure in the Low-Pressure Gas Pipeline increases to a certain point, the CLGC wells will be activated in a cascade fashion. CLGC wells are activated by closing the Shutdown Valve (SDV) at the wellhead. If the pressure in the Low-Pressure Gas Pipeline does not decrease, an additional CLGC well will be activated. Additional CLGC wells will be activated in this cascade system. When the interruption ends and gas can once again be sold to DCP, the gas storage event

ends. The Shutdown Valves open and the CLGC wells produce down the flowline to a dedicated separator at the CTB for measurement.

11. A map depicting the pipeline that ties the CLGC wells for the pilot project into the gathering system and the affected compressor station is included in the attached *Exhibit A* at page 5. The colors and components of the system are the same as the process flow diagram in the attached *Exhibit A* at page 6 with some additional items. The black lines represent the wellbore trajectories of the CLGC wells. The First Take Point (FTP) and Last Take Point (LTP) are labeled on the well trajectory. The project area is outlined with a dashed, dark-blue line, which is based on each CLGC well's horizontal spacing unit as shown on the attached *Exhibit A* at pages 17-20. Gas source wells are not on this map.

12. Data for each CLGC well, including well diagrams and well construction, casing, tubing, packers, cement, perforations, and other details for each proposed injection well are included in the attached *Exhibit A* at pages 10-12, 14-15, 20-21 and 26-27. All wells have gas lift systems which inject down the casing and produce up the tubing with a packer in the hole.

13. When needed, OXY proposes to place packers as deep as possible but no more than 100 feet above the top of the injection zone.

14. Cement bond logs for each of the CLGC wells demonstrate the placement of cement in the CLGC wells for this pilot project, and that there is a good and sufficient cement bond with the production casing and the tie-in of the production casing with the next prior casing in each well. See *Exhibit A* at 16-19, 22-25, 28-32, respectively.

15. The current average surface pressures under normal operations for the CLGC wells range from approximately 540 psi to 780 psi. See *Exhibit A* at 39. The maximum achievable surface pressure (MASP) for the wells in the pilot project will be 1,200 psi. *Id.*

16. Assuming a full fluid column of reservoir brine water, the proposed maximum achievable surface pressure will not exert pressure at the top perforation in the wellbore of any injection well with a full fluid column of reservoir brine water in excess of 90% of the burst pressure for the production casing or production liner. See *Exhibit A* at 39. In addition, the proposed maximum achievable surface pressure will not exceed 0.14 psi per foot as measured at the top of the uppermost perforation in any injection well and will not exert pressure at the topmost perforation in excess of 90% of the formation parting pressure. See *Exhibit A* at 39.

17. OXY plans to monitor injection and operational parameters for the pilot project using an automated supervisory control and data acquisition (SCADA) system with pre-set alarms and automatic shut-in safety valves that will prevent injection pressures from exceeding the MASP. See *Exhibit A* at 49-51. The wellhead diagram for all CLGC wells is found in *Exhibit A* at 40. Injection starts at the flowmeter where the injection rate is measured and moves through the following components: first, the injection flow control valve which controls the injection pressure, the casing safety shutdown valve (SSV), which can open and close automatically, the casing-tubing annulus, the tubing, the tubing SSV, which can open and close automatically and is also closed when a CLGC well is activated, and finally another flow control valve (FCV), which controls flowline pressure. Pressure Indicating Transmitters (PITs) are located on the casing valve and tubing valves. PITs capture pressure data that is stored in the SCADA system and then used to automatically control the SSVs and FCVs.

18. The proposed average injection rate for each CLGC well is 1.8 MMSCFD with a maximum injection rate of 2.0 MMSCFD during injection. See *Exhibit A* at 39.

19. The wells proposed for the CLGC project have previously demonstrated mechanical integrity. See *Exhibit A* at 41. OXY will undertake new tests to demonstrate

mechanical integrity for each of the wells proposed for this pilot project as a condition of approval prior to commencing injection operations.

20. 19. The source of gas for injection will be from OXY's Avogato wells producing in the Bone Spring and Wolfcamp formations that are identified in the list of wells in *Exhibit A* at page 43. Each of OXY's proposed injection wells are operated by OXY and OXY holds 100% of the working interest in the wells.

21. OXY has prepared an analysis of the composition of the source gas for injection and a corrosion prevention plan. See *Exhibit A* at 42-48. *Exhibit A* at 44 is a summary of the gas analyses included in the application and the components in the system. All source wells flow to the single CTB. From there gas flow to the Red Tank 19 CGL Station. Gas analyses have been provided for the CGL Station and the formation for gas injection. The gas analyses for the CGL Stations are similar to the gas analyses for the zones for gas injection. H₂S is not found in any of the gas analyses. CO₂ is found in all the analyses at various amounts.

22. Since CO₂ is already present in this system, OXY intends to continue with its existing Corrosion Prevention Plan in these CLGC wells outlined at page 48 of *Exhibit A*. In the existing Corrosion Prevention Plan, produced gas is processed through a gas dehydration unit to remove water. Then corrosion inhibitor is added to the system of each well downstream of the gas dehydration unit. Fluid samples are taken regularly and checked for iron, manganese, and residual corrosion inhibitor in the produced fluids. The process allows OXY to continuously monitor and adjust the chemical treatment over the life of the well to minimize corrosion. Additionally, fluid samples will be taken prior to gas injection to establish a baseline for analysis. After a CLGC event, fluid samples will be taken to check for iron, manganese, and

residual corrosion inhibitor in the produced fluids in the CLGC wells. OXY will continue to monitor and adjust the chemical treatment over the life of the project.

23. Using an automated supervisory control and data acquisition (SCADA) system, OXY will monitor a multitude of rates and pressures to allow for efficient and safe operation, proper allocation and reporting of volumes, and immediate response to unexpected events. *See Exhibit A* at 40 and 50-51. Each CLGC well will also include automated safety devices, including automatic shut-in valves among other operational safety measures. OXY will also monitor and track various operational parameters at the pilot project's central tank battery and central gas lift compressor. *See Exhibit A* at 50-51.

24. OXY proposes a Data Collection Plan for the Avogato CLGC Project as seen in its Data Collection Plan, attached as **Exhibit B-1**, to collect and report data pertinent to CLGC operations. The plan is similar to the data collection process outlined in the Injection Order R-21747 but proposes some changes. Consistent with Order R-21747, the Data Collection Plan will apply to the wells listed in the table in the Exhibit. The spatial relationship of these wells is illustrated in the Gun Barrel View included in the Exhibit. This diagram shows the proposed Avogato CLGC wells (blue circles) and any offset wells in the same correlative zone (yellow circles). There are three proposed CLGC wells in the Avalon. In the OXY Data Collection Plan for Avogato, there are some changes to the reporting requirements. First, to lessen the administrative burden of these requirements, OXY will provide status updates every 12 months. Second, the recovery analysis required for each involved CLGC well and for each well related to each involved CLGC well will be required only if the change in production casing pressure or production volume is related to the CLGC event. These wells are on gas lift most of the time, and changes in casing pressure or production volumes are not unusual for artificially lifted wells.

Third, if any of the CLGC wells or the involved CLGC wells are being produced pursuant to an approved commingling permit, OXY will use best efforts to obtain the well production volumes at the frequency required, but measurements necessary for the proper allocation of volumes need to take precedent over these requirements. Lastly, OXY shall not be required to install additional facilities or measurement equipment to collect the data described. These changes create an achievable Data Collection Plan for Avogato. If a data collection plan is required as outlined in the Injection Order R-21747, additional well testing equipment will be required. If required, it will severely impact OXY's ability to pursue the CLGC Project due to the capital costs associated with installing the additional well testing equipment.

25. I also conducted an analysis of the half-mile area of review and two-mile area surrounding each of the proposed injection wells. A map depicting wells and their trajectories within the half-mile area of review and two-mile radius around the injection wells is located at page 55 of *Exhibit A*. A map identifying each surface tract by ownership type within the half-mile area of review and two-mile area surrounding each of the proposed injection wells is located at page 53 of *Exhibit A*. Finally, a map depicting all wells identified with completed laterals all or partially within the half-mile area of review is located at page 57 of *Exhibit A*. It assigns a well identification number to each well within the area of review that may be cross referenced in the following well data tabulation chart on pages 58-61 of *Exhibit A*. The well data tabulation chart provides detailed information for identification, location, drilling, casing, cement, current completion, and current producing pool of each well.

26. Wellbore schematics for the ten wells that penetrate the proposed injection interval and have been plugged and abandoned are included at pages 69-78 in *Exhibit A*. Review of the

wellbore diagrams indicate adequate casing, cement, and cement plug placement to sufficiently contain gas within the injection interval.

27. To properly determine gas production from each CLGC well, OXY will apply a Percentage Gas Allocation Method. See Gas Allocation, attached as **Exhibit B-2**. Per existing commingling permits,¹ gas sales are allocated by well test. For a period of time after a storage event, the Percentage Gas Allocation Method will be used to differentiate between native gas (owned by the owners of the CLGC well) and recovery of previously stored gas (owned by the owners of the source wells). This method is simple compared to individual GOR forecasting and decline curve analysis for each well. A similar method is in the proposed Unit Agreement for OXY's pending Cedar Canyon Section 23/24 EOR "Juno" Unit. The method allows for native gas production and associated payments to occur each month regardless of the injection gas volumes. I believe it is a fair and reasonable method for allocating gas production after a storage event. We met with the State Land Office on June 2, 2021 to present and discuss the method. They did not voice objection to the method.

28. Working with OXY's in-house land department, I also prepared a list of affected parties required to receive notice of this application. The map on page 100 of **Exhibit A** reflects that the State of New Mexico is the surface owner with respect to each proposed CLGC well. The following map on page 102 depicts the area of review and identifies the designated operator for each tract that falls within the half-mile area of review for each of the wells within the Bone Spring formation.

29. Pages 106-109 of **Exhibit A** identify all leasehold operators and other affected persons within any tract wholly or partially contained within one-half mile of the completed

¹ PLC-1318.

interval of the wellbore for each of the proposed injection wells entitled to notice in accordance with Division regulations, including the State of New Mexico as the surface owner where each CLGC well is located.

30. Parties entitled to notice were identified based on a determination of the title of lands and interests as recorded in the records of Lea County or from a review of New Mexico Oil Conservation Division and Bureau of Land Management operator records as of the time the application was filed or from OXY's internal records (division orders).

31. It is my opinion that OXY undertook a good faith effort to locate and identify the correct parties and valid addresses required for notice within the half-mile area of review. To the best of my knowledge the addresses used for notice purposes are valid and correct. There were no unlocatable parties for whom we were unable to locate a valid address.

32. I provided the law firm of Holland & Hart LLP a list of names and addresses of the affected parties identified on pages 106-109 for purposes of providing notice.

33. As reflected on **Exhibit B-3**, notice of this application was provided in accordance with 19.15.26.8(B)(2) NMAC. Notice was also published in the Hobbs Daily News.

34. **OXY Exhibits B-1** through **B-3** were either prepared by me or compiled under my direction and supervision.

FURTHER AFFIANT SAYETH NOT.

Stephen Janacek
Stephen Janacek

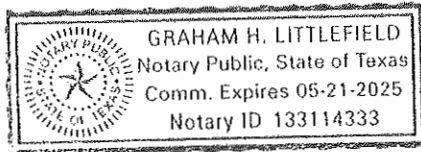
STATE OF TEXAS)
)
COUNTY OF Brazos)

SUBSCRIBED and SWORN to before me this 3rd day of August, 2021 by
STEPHEN JANACEK.

Graham H. Littlefield
NOTARY PUBLIC

My Commission Expires:

5/21/25



PROPOSED DATA COLLECTION PLAN FOR AVOGATO CLGC PROJECT

CLGC Well Name	Completion Reservoir	Involved Well (West Side)	Involved Well (East Side)
Avogato 30-31 State Com 11H	Avalon	None	Avogato 30-31 State Com 12H
Avogato 30-31 State Com 13H		None	None
Avogato 30-31 State Com 14H		None	Red Tank 30-31 State Com 14H

A Gunbarrel View and a well list with API's are included after the proposed Data Collection Plan. The Gunbarrel View is a visual representation of the wells in the table above.

Applicant shall provide to the OCD Engineering Bureau at ocd.engineer@state.nm.us, project status updates every twelve (12) months after the approval of this Order and a summary report no later than three (3) months after the cessation of the pilot project or upon request from OCD. Status updates shall include a summary of the actions taken and problems and solutions identified and implemented. The summary report(s) shall include:

- a. a summary of all project-related activity;
- b. a review regarding any problems and solutions identified and implemented;
- c. for each period of injection, a summary of the results, including for each CLGC Well in which injection occurred:
 - i. average and maximum injection flow rates;
 - ii. injection duration; and
 - iii. total injected volume.
- d. for each period of injection, the following data graphed and tabulated with a resolution of at least: one (1) data point per hour beginning twenty-four (24) hours before the injection, four (4) data points per hour during the injection, and one (1) data point per hour ending twenty-four (24) hours after the injection:
 - i. for each involved CLGC Well, the oil and gas production rates and annulus pressure of all casing strings; and
 - ii. for each well related to each involved CLGC Well, the oil and gas production and injection flow rates and production casing pressure.

BEFORE THE OIL CONSERVATION DIVISION
 Santa Fe, New Mexico
 Exhibit No. B1
 Submitted by: OXY USA INC.
 Hearing Date: August 05, 2021
 Case No. 22088

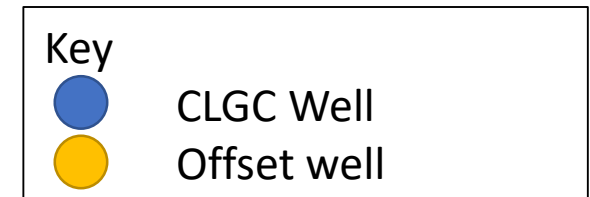
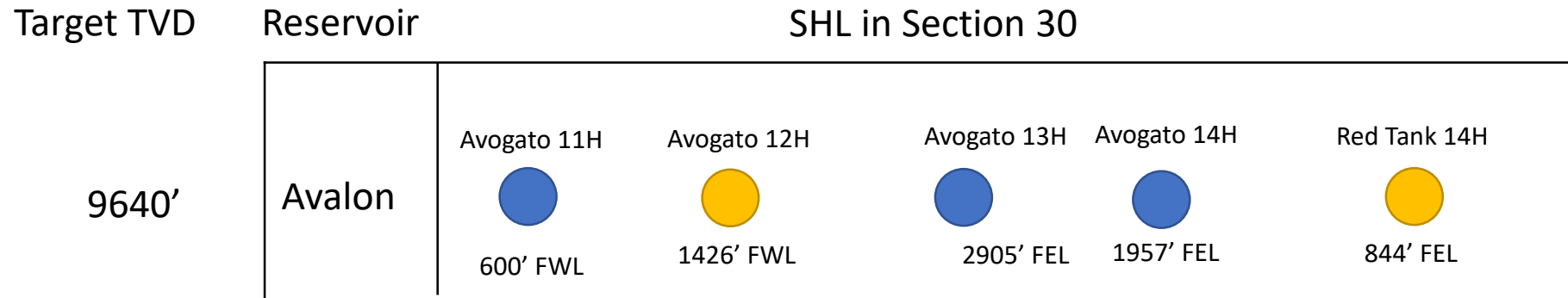
e. for each period of injection, a recovery profile for each involved CLGC Well and for each well related to each involved CLGC Well which experienced a change in production casing pressure or production volume related to the injection during or immediately following the injection. The volume of recovered gas shall be determined by taking the difference between the gas production following the injection and baseline production. The baseline production shall be determined by using production history to plot a production curve that estimates what the production would have been had injection not occurred. The recovery profile shall include:

i. a summary of the results, including the volume and percent of total production recovered and the duration of time required to achieve that recovery; and

ii. a tabulation of daily oil and gas production and baseline production totals; beginning a week before the injection and ending when either the gas production is near equal to its baseline production or Applicant conducts another period of injection on an involved CLGC Well.

f. If any of the CLGC wells or the involved CLGC wells are being produced pursuant to an approved commingling permit, Applicant will use best efforts to obtain the well production volumes at the frequency required in subparagraphs (d) or (e) above, but measurements necessary for proper allocation of volumes under the commingling permit shall take precedent over these requirements. Also, Applicant shall not be required to install additional facilities or measurement equipment to collect the data described above in subparagraphs (d) or (e) above.

Avogato Area: Gunbarrel View



Note: Location info based on BHL.

CLGC Wells & Offsets

API	Well Name	
3002545956	Avogato 30-31 State Com 11H	Injector
3002545958	Avogato 30-31 State Com 13H	Injector
3002545959	Avogato 30-31 State Com 14H	Injector
3002545957	Avogato 30-31 State Com 12H	Offset
3002544193	Red Tank 30-31 State Com 14H	Offset

Gas Production Percentage Allocation Method for CLGC- Avogato

- Simple compared to a GOR method.
- Similar method utilized in the proposed Unit Agreement for Cedar Canyon Sec 23/24 EOR “Juno” Unit.
- Native gas production and royalty payments occur each month regardless of storage gas volumes.
- Fair and reasonable method for allocating gas production after a storage event.
- SLO (met 6/2/21) did not voice any objections.

- **Method**
 - During a storage event, storage gas is metered. The cumulative metered volume equals the stored injection volume.
 - After a storage event, produced gas will be measured and allocated on a monthly basis between gas lift, native gas production and recovered storage injection volume.
 - Total wellhead volume less gas lift injection equals gross production.
 - Until 100% of storage injection volume is recovered, gross production will be apportioned as follows:
 - 70% return of storage injection volume and
 - 30% native gas production.
 - After all stored injection volume is recovered, all gross production will be treated as native gas.

BEFORE THE OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Exhibit No. B2
Submitted by: OXY USA INC.
Hearing Date: August 05, 2021
Case No. 22088



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

APPLICATION OF OXY USA INC. FOR A
CLOSED LOOP GAS CAPTURE INJECTION
PILOT PROJECT, LEA COUNTY, NEW MEXICO.

CASE NO. 22088

AFFIDAVIT

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

Adam G. Rankin, attorney in fact and authorized representative of OXY USA Inc, the Applicant herein, being first duly sworn, upon oath, states that the above-referenced Application has been provided under the notice letters and proof of receipts attached hereto.

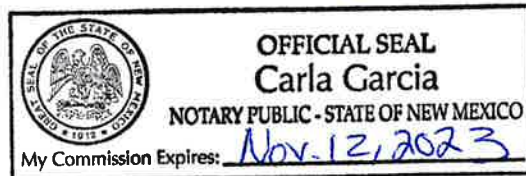
Adam G. Rankin

SUBSCRIBED AND SWORN to before me this 3rd day of August, 2021 by Adam G. Rankin.

Notary Public

My Commission Expires:

Nov. 12, 2023



BEFORE THE OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Exhibit No. B3
Submitted by: OXY USA INC.
Hearing Date: August 05, 2021
Case No. 22088



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

July 16, 2021

VIA CERTIFIED MAIL
CERTIFIED RECEIPT REQUESTED

TO: ALL AFFECTED PARTIES

Re: Application of OXY USA Inc. for Closed Loop Gas Capture Injection Pilot Project, Lea County, New Mexico.
Avogato 30 31 State Com #11H, #13H, #14H wells

Ladies & Gentlemen:

This letter is to advise you that OXY USA Inc. has filed the enclosed application with the New Mexico Oil Conservation Division.

During the COVID-19 Public Health Emergency, state buildings are closed to the public and hearings will be conducted remotely. The hearing will be conducted on August 5, 2021 beginning at 8:15 a.m., until it is concluded. To participate in the electronic hearing, see the instructions posted on the OCD Hearings website: <http://www.emnrd.state.nm.us/OCD/announcements.html>.

You are not required to attend this hearing, but as an owner of an interest that may be affected by this application, you may appear and present testimony. Failure to appear at that time and become a party of record will preclude you from challenging the matter at a later date. Parties appearing in cases are required by Division Rule 19.15.4.13.B to file a Pre-hearing Statement four business days in advance of a scheduled hearing. This statement must be filed online or in person at the Division's Santa Fe office and should include: the names of the parties and their attorneys; a concise statement of the case; the names of all witnesses the party will call to testify at the hearing; the approximate time the party will need to present its case; and identification of any procedural matters that are to be resolved prior to the hearing.

If you have any questions about this matter, please contact Stephen Janacek, at (713) 497-2417, or Stephen_Janacek@OXY.com.

Sincerely,

A handwritten signature in blue ink, appearing to read "A.G. Rankin".

Adam G. Rankin
ATTORNEY FOR OXY USA INC.

OXY_Avogato CLGC injection project
Case No. 22088 Postal Delivery Report

TrackingNo	ToName	DeliveryAddress	City	State	Zip	USPS_Status
9402811898765804642813	State Land Office	308 Old Santa Fe Trail	Santa Fe	NM	87501	Your item was delivered at 6:12 am on July 20, 2021 in SANTA FE, NM 87501.
9402811898765804642875	C.D. Martin	PO Box 12	Midland	TX	79702-0012	Your item was delivered at 1:02 pm on July 20, 2021 in MIDLAND, TX 79701.
9402811898765804642714	Cal-Mon Oil Company	200 N Loraine St Ste 1404	Midland	TX	79701-4753	Your item was delivered to the front desk, reception area, or mail room at 11:06 am on July 19, 2021 in MIDLAND, TX 79701.
9402811898765804642752	Campeche Petro LP	500 Commerce St Ste 600	Fort Worth	TX	76102-5477	Your item was delivered to the front desk, reception area, or mail room at 1:40 pm on July 20, 2021 in FORT WORTH, TX 76102.
9402811898765804642721	Cardinal Plastics	PO Box 935	Odessa	TX	79760-0935	Your item was delivered at 2:02 pm on July 19, 2021 in ODESSA, TX 79761.
9402811898765804642707	Conrad E. Coffield	PO Box 8028	Santa Fe	NM	87504-8028	Your item was refused by the addressee at 1:21 pm on July 21, 2021 in SANTA FE, NM 87501 and is being returned to the sender.
9402811898765804642790	EOG Resources Inc.	PO Box 840321	Dallas	TX	75284-0321	Your item was delivered at 7:39 pm on July 20, 2021 in DALLAS, TX 75266.
9402811898765804642783	Kastman Oil Company	PO Box 5930	Lubbock	TX	79408-5930	Your item was delivered at 9:19 am on July 20, 2021 in LUBBOCK, TX 79408.
9402811898765804642738	Lonsdale Resources LLC	2626 Cole Ave Ste 300	Dallas	TX	75204-1094	Your item was delivered to the front desk, reception area, or mail room at 10:43 am on July 20, 2021 in DALLAS, TX 75204.
9402811898765804642776	Maduro Oil & Gas LLC	3102 Maple Ave Ste 400	Dallas	TX	75201-1261	Your item was delivered to an individual at the address at 10:02 am on July 20, 2021 in DALLAS, TX 75201.
9402811898765804642912	SDS Properties Inc.	PO Box 246	Roswell	NM	88202-0246	This is a reminder to arrange for redelivery of your item or your item will be returned to sender.
9402811898765804642851	CIMAREX ENERGY CO.	600 N Marienfeld St Ste 600	Midland	TX	79701-4405	Your item was delivered to an individual at the address at 11:30 am on July 19, 2021 in MIDLAND, TX 79701.
9402811898765804642967	Silverstone Resources Inc.	PO Box 41270	Reno	NV	89504-5270	Your item was delivered at 10:26 am on July 22, 2021 in RENO, NV 89501.
9402811898765804642929	Tocor Investments Inc.	PO Box 293	Midland	TX	79702-0293	Your item was delivered at 11:18 am on July 20, 2021 in MIDLAND, TX 79701.
9402811898765804642905	A.J. Losee	PO Box 1720	Artesia	NM	88211-1720	This is a reminder to arrange for redelivery of your item or your item will be returned to sender.
9402811898765804642998	Anne Ransome-Losee	3505 Calle Cuervo NW Apt 218	Albuquerque	NM	87114-9212	Your item was returned to the sender on July 29, 2021 at 3:01 pm in SANTA FE, NM 87501 because the addressee moved and left no forwarding address.

OXY_Avogato CLGC injection project
Case No. 22088 Postal Delivery Report

9402811898765804642943	Arthur Dow	324 Yucca Dr NW	Albuquerque	NM	87105-1935	Your item was returned to the sender on July 29, 2021 at 3:01 pm in SANTA FE, NM 87501 because the addressee moved and left no forwarding address.
9402811898765804642981	Bradley S. Bates	2400 N Pecos St	Midland	TX	79705-7652	Your item was delivered to an individual at the address at 2:19 pm on July 19, 2021 in MIDLAND, TX 79705.
9402811898765804642936	Buckeye Energy Inc.	PO Box 3788	Midland	TX	79702-3788	Your item was delivered at 1:25 pm on July 21, 2021 in MIDLAND, TX 79702.
9402811898765804642974	Burlington Resources Oil & Gas Co LP	PO Box 51810	Midland	TX	79710-1810	Your item has been delivered to an agent for final delivery in MIDLAND, TX 79705 on July 30, 2021 at 6:44 pm.
9402811898765804642615	C. W. Trainer	PO Box 3788	Midland	TX	79702-3788	Your item was delivered at 1:25 pm on July 21, 2021 in MIDLAND, TX 79702.
9402811898765804642653	Carmine Scarcelli	2111 Wellington Ct	Midland	TX	79705-1700	Your item has been delivered to an agent for final delivery in MIDLAND, TX 79705 on July 19, 2021 at 3:40 pm.
9402811898765804642868	EOG Resources Inc.	PO Box 2267	Midland	TX	79702-2267	Your item was picked up at a postal facility at 7:53 am on July 20, 2021 in MIDLAND, TX 79702.
9402811898765804642660	Carrie A. Haydel	149 14th St	New Orleans	LA	70124-1209	Your item was delivered in or at the mailbox at 5:22 pm on July 19, 2021 in NEW ORLEANS, LA 70124.
9402811898765804642622	Devon Energy Production Company LP	333 W Sheridan Ave	Oklahoma City	OK	73102-5010	Your item was delivered at 9:25 am on July 19, 2021 in OKLAHOMA CITY, OK 73102.
9402811898765804642608	Diance C. Prince	816 Connecticut Ave NW	Washington	DC	20006-2705	Your item arrived at the Post Office at 9:01 am on July 22, 2021 in WASHINGTON, DC 20016.
9402811898765804642691	Elizabeth Losee	328 Sierra Pl NE	Albuquerque	NM	87108-1139	Your item was delivered to an individual at the address at 2:51 pm on July 19, 2021 in ALBUQUERQUE, NM 87108.
9402811898765804642646	EOG Resources Inc.	PO Box 840321	Dallas	TX	75284-0321	Your item was delivered at 7:39 pm on July 20, 2021 in DALLAS, TX 75266.
9402811898765804642684	Frederick Prince IV	816 Connecticut Ave NW	Washington	DC	20006-2705	Your item arrived at the Post Office at 9:02 am on July 22, 2021 in WASHINGTON, DC 20016.
9402811898765804642639	Jesus Salazar Family LP	2400 Rose Ave NW	Albuquerque	NM	87104-1942	This is a reminder to arrange for redelivery of your item or your item will be returned to sender.
9402811898765804642677	John Blackburn	PO Box 340535	Austin	TX	78734-0009	Your item was delivered at 1:36 pm on July 19, 2021 in AUSTIN, TX 78734.
9402811898765804642110	Kent H. Berger	203 W Wall St Ste 612	Midland	TX	79701-4555	Your item departed our MIDLAND TX DISTRIBUTION CENTER destination facility on August 2, 2021 at 12:53 am. The item is currently in transit to the destination.
9402811898765804642158	Lewis O. Campell	8111 Lamp Post Cir SE	Albuquerque	NM	87123	Your item was returned to the sender on July 29, 2021 at 3:01 pm in SANTA FE, NM 87501 because the addressee moved and left no forwarding address.

OXY_Avogato CLGC injection project
Case No. 22088 Postal Delivery Report

9402811898765804642820	Matador Production Company	5400 Lbj Fwy Ste 1500	Dallas	TX	75240-1017	Your item was delivered to an individual at the address at 10:39 am on July 20, 2021 in DALLAS, TX 75240.
9402811898765804642165	Losee Investments	PO Box 1720	Artesia	NM	88211-1720	This is a reminder to arrange for redelivery of your item or your item will be returned to sender.
9402811898765804642127	Lynn S. Charulk	2401 Stutz Pl	Midland	TX	79705-4931	Your item has been delivered to an agent for final delivery in MIDLAND, TX 79705 on July 21, 2021 at 5:28 pm.
9402811898765804642103	Mackenroth Interests LLC	3601 N. I-40 Service Rd.	West Martairie	LA	70002	Your item was picked up at a postal facility at 9:46 am on July 26, 2021 in METAIRIE, LA 70009.
9402811898765804642141	Mcnic O&G Properties	1360 Post Oak Blvd	Houston	TX	77056-3030	Your item was returned to the sender on July 29, 2021 at 3:01 pm in SANTA FE, NM 87501 because the addressee moved and left no forwarding address.
9402811898765804642134	PBEX Resources	223 W Wall St Ste 900	Midland	TX	79701-4567	Your item was delivered to an individual at the address at 2:16 pm on July 19, 2021 in MIDLAND, TX 79701.
9402811898765804642172	Penwell Energy Inc.	600 N Marienfeld St Ste 1100	Midland	TX	79701-4395	We attempted to deliver your package at 9:38 am on July 31, 2021 in MIDLAND, TX 79701 but could not access the delivery location. We will redeliver on the next business day.
9402811898765804642318	PXP Producing LLC	717 Texas St Ste 2100	Houston	TX	77002-2753	Your item was returned to the sender on July 29, 2021 at 3:01 pm in SANTA FE, NM 87501 because the addressee moved and left no forwarding address.
9402811898765804642356	Robert M. Dow Revocable Trust	5136 Lomas De Atrisco Rd NW	Albuquerque	NM	87105-1569	Your item was delivered to an individual at the address at 10:56 am on July 19, 2021 in ALBUQUERQUE, NM 87105.
9402811898765804642363	South Highway 14 Bus Co	324 Yucca Dr NW	Albuquerque	NM	87105-1935	Your item was returned to the sender on July 29, 2021 at 3:01 pm in SANTA FE, NM 87501 because the addressee moved and left no forwarding address.
9402811898765804642325	Southwest Royalties Inc	6 Desta Dr Ste 3700	Midland	TX	79705-5516	Your item was delivered to the front desk, reception area, or mail room at 9:56 am on July 19, 2021 in MIDLAND, TX 79705.
9402811898765804642806	Wagner Oil Co	500 Commerce St Ste 500	Fort Worth	TX	76102-5439	Your item was delivered to the front desk, reception area, or mail room at 1:40 pm on July 20, 2021 in FORT WORTH, TX 76102.
9402811898765804642394	The Gray Exploration Co	3601 N. I-40 Service Rd.	West Martairie	LA	70002	Your item was picked up at a postal facility at 9:46 am on July 26, 2021 in METAIRIE, LA 70009.
9402811898765804642349	The Ninety-Six Corp	550 W Texas Ave Unit 1225	Midland	TX	79701-4257	Your item was returned to the sender on July 29, 2021 at 3:01 pm in SANTA FE, NM 87501 because the addressee moved and left no forwarding address.

OXY_Avogato CLGC injection project
Case No. 22088 Postal Delivery Report

9402811898765804642387	Trainer Partners LTD	PO Box 3788	Midland	TX	79702-3788	This is a reminder to arrange for redelivery of your item or your item will be returned to sender.
9402811898765804642332	LIME ROCK RESOURCES A, L.P.	1111 Bagby St Ste 4600	Houston	TX	77002-2559	Your item has been delivered to an agent for final delivery in HOUSTON, TX 77002 on July 19, 2021 at 12:30 pm.
9402811898765804642370	POGO PRODUCING CO.	PO Box 10340	Midland	TX	79702-7340	Your item was returned to the sender on July 29, 2021 at 3:01 pm in SANTA FE, NM 87501 because the addressee moved and left no forwarding address.
9402811898765804642899	1 Timothy 6 LLC	PO Box 30598	Edmond	OK	73003-0010	Your item was delivered at 1:20 pm on July 22, 2021 in EDMOND, OK 73003.
9402811898765804642844	2019 Permian Basin JV	PO Box 10	Folsom	LA	70437-0010	Your item was delivered at 11:01 am on July 30, 2021 in FOLSOM, LA 70437.
9402811898765804642882	Accelerate Resources Operating LLC	5949 Sherry Ln	Dallas	TX	75225-6532	Your item was returned to the sender on July 30, 2021 at 2:50 pm in DALLAS, TX 75225 because of an incomplete address.
9402811898765804642837	BLM	620 E Greene St	Carlsbad	NM	88220-6292	Your item was delivered to the front desk, reception area, or mail room at 12:34 pm on July 20, 2021 in CARLSBAD, NM 88220.

Affidavit of Publication


STATE OF NEW MEXICO
COUNTY OF LEA

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

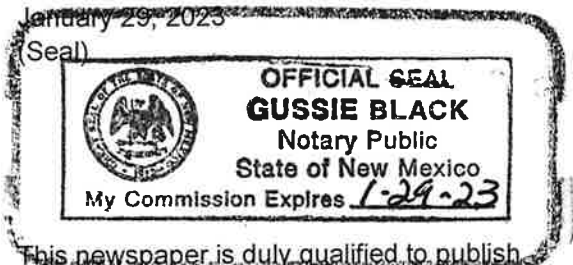
Beginning with the issue dated
July 25, 2021
and ending with the issue dated
July 25, 2021.


Publisher

Sworn and subscribed to before me this
25th day of July 2021.


Business Manager

My commission expires
January 29, 2023



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

LEGAL NOTICE July 25, 2021

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

The State of New Mexico, Energy Minerals and Natural Resources Department, Oil Conservation Division ("Division") hereby gives notice that the Division will hold public hearings before a hearing examiner on the following case. During the COVID-19 Public Health Emergency, state buildings are closed to the public and Division hearings will be conducted remotely. The public hearing for the following case will be electronic and conducted remotely. The hearing will be conducted on **Thursday, August 5, 2021, beginning at 8:15 a.m.** To participate in the electronic hearing, see the instructions posted below. The docket may be viewed at <http://www.emnrd.state.nm.us/OCD/hearings.html> or obtained from Marlene Salvidrez, at Marlene.Salvidrez@state.nm.us. Documents filed in the case may be viewed at <http://ocdimage.emnrd.state.nm.us/imaging/CaseFileCriteria.aspx>. If you are an individual with a disability who needs a reader, amplifier, qualified sign language interpreter, or other form of auxiliary aid or service to attend or participate in a hearing, contact Marlene Salvidrez at Marlene.Salvidrez@state.nm.us, or the New Mexico Relay Network at 1-800-659-1779, no later than **July 25, 2021**.

Persons may view and participate in the hearings through the following link:

<https://nmemnrd.webex.com/nmemnrd/onstage/g.php?MTID=e12d56bf176d7f280e15d2923570bbb1c>
Event number: 146 234 7684
Event password: u47kXsERRb4

Join by video: 1462347684@nmemnrd.webex.com
Numeric Password: 949758
You can also dial 173.243.2.68 and enter your meeting number

Join by audio: 1-844-992-4726 United States Toll Free
Access code: 146 234 7684

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

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

To: All affected persons, including: State Land Office; Cimarex Energy Co.; EOG Resources Inc.; Matador Production Company; Wagner Oil Co; 1 Timothy 6 LLC; 2019 Permian Basin JV; Accelerate Resources Operating LLC; Bureau of Land Management; C.D. Martin, his or her heirs and devisees; Cal-Mon Oil Company; Campeche Petro LP; Cardinal Plastics; Conrad E. Coffield, his heirs and devisees; Kastman Oil Company; Lonsdale Resources LLC; Maduro Oil & Gas LLC; SDS Properties Inc.; Silverstone Resources Inc.; Tocar Investments Inc.; A.J. Losee, his or her heirs and devisees; Anne Ransome-Losee, her heirs and devisees; Arthur Dow, his heirs and devisees; Bradley S. Bates, his heirs and devisees; Buckeye Energy Inc.; Burlington Resources Oil & Gas Co LP; C. W. Trainer, his or her heirs and devisees; Carmine Scarcelli, his heirs and devisees; Carrie A. Haydel, her heirs and devisees; Devon Energy Production Company LP; Diance C. Prince, her heirs and devisees; Elizabeth Losee, her heirs and devisees; Frederick Prince IV, his heirs and devisees; Jesus Salazar Family LP, John Blackburn, his heirs and devisees; Kent H. Berger, his heirs and devisees; Lewis O. Campell, his heirs and devisees; Losee Investments; Lynn S. Charulk, her heirs and devisees; Mackenroth Interests LLC; Mcnic O&G Properties; PBEX Resources; Penwell Energy Inc.; PXP Producing LLC; Robert M. Dow Revocable Trust; South Highway 14 Bus Co; Southwest Royalties Inc; The Gray Exploration Co; The Ninety-Six Corp; Trainer Partners LTD; Lime Rock Resources A, L.P.; Pogo Producing Co.; and Pogo Producing Company LLC.

Case No. 22088: Application of OXY USA Inc. for Closed Loop Gas Capture Injection Pilot Project, Lea County, New Mexico. Applicant in the above-styled cause seeks an order authorizing it to engage in a closed loop gas capture injection pilot project ("pilot project") in the Bone Spring formation in the Red Tank; Bone Spring, East Pool (Pool Code 51687), within a 1,280-acre, more or less, project area for this pilot project consisting of all of Sections 30 and 31, Township 22 South, Range 33 East, NMPM, Lea County, New Mexico, by occasionally injecting into the following wells:

- The **Avogato 30_31 State Com #11H well** (API No. 30-025-45956), with a surface location 160 feet FNL and 885 feet FWL (Lot 1) in Section 30, and a bottom hole location 50 feet FSL and 600 feet FWL (Lot 4) in Section 31.
- The **Avogato 30_31 State Com #13H well** (API No. 30-025-45958), with a surface location 160 feet FNL and 2375 feet FEL (Unit B) in Section 30, and a bottom hole location 17 feet FSL and 2905 feet FEL (Unit N) in Section 31.
- The **Avogato 30_31 State Com #14H well** (API No. 30-025-45959), with a surface location 160 feet FNL and 2340 feet FEL (Unit B) in Section 30, and a bottom hole location 160 feet FSL and 2340 feet FEL (Unit O) in Section 31.

OXY seeks authority to utilize this producing well to occasionally inject produced gas into the Bone Spring formation at total vertical depths of between approximately 9,330 feet to 9,540 feet along the horizontal portion of each wellbore at surface injection pressures of no more than 1,200 psi. The source of the produced gas will be the Bone Spring and Wolfcamp formations. The subject acreage is located approximately 30 miles northwest of Jal, New Mexico.

#36677

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

APPLICATION OF OXY USA INC. FOR A
CLOSED LOOP GAS CAPTURE INJECTION
PILOT PROJECT, LEA COUNTY, NEW
MEXICO.

CASE NO. 22088

AFFIDAVIT OF PETER SENIOR

I, Peter Senior, of lawful age and being first duly sworn, declare as follows:

1. My name is Peter Senior. I work for OXY USA, Inc. ("OXY"), as a petroleum geologist.

2. I have not previously testified before the New Mexico Oil Conservation Division as an expert witness in petroleum geology. My relevant work experience and educational background are summarized the attached **Exhibit C-1**.

3. I am familiar with the application filed by OXY in this case for approval of a closed loop gas capture injection pilot project in the Bone Spring formation, and I have conducted a geologic study of the lands in the subject area that is included in ***Exhibit A*** to OXY's application. My analysis and conclusions are summarized at pages 79-86 of the Exhibit.

4. A general characterization of the geology of the Bone Spring formation and its suitability for the proposed injection, including identification of confining layers and their ability to prevent vertical movement of the injected gas is included in my analysis. See ***Exhibit A*** at 80-86.

5. Page 80 of ***Exhibit A*** depicts a type log for the project area, showing the proposed injection zone, adjacent oil and gas zones, and confining layers. The proposed injection zone is the Avalon Shale, a sub-unit of the larger Bone Spring Formation. Adjacent oil and gas zones are the

BEFORE THE OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Exhibit No. C
Submitted by: OXY USA INC.
Hearing Date: August 05, 2021
Case No. 22088

underlying First Bone Spring Sand, and overlying Avalon Sand and Brushy Canyon Formation. Confining layers that will prevent migration of injected gas into adjacent oil and gas zones are the underlying First Bone Spring Lime and overlying Bone Spring Formation.

6. Page 81 is a cross-section map depicting the location of three representative wells used to construct a cross-section across the pilot project area on the following page. The cross section on Page 82 indicates that the Avalon Shale dips to the east and maintains a consistent thickness across the project area. There is no evidence of faults, pinch-outs, or other potential pathways for out-of-zone migration indicated by the cross-sections.

7. Page 83 is a structure map on the top of the Avalon Shale that shows the structure gently dipping to the east. There is no evidence of faults, pinch-outs, or other potential pathways for out-of-zone migration indicated by the structure map.

8. Page 84 is a thickness map and reflects that the Avalon Shale maintains a consistent thickness across the pilot project area of between about 500-600 feet. There is no evidence of faults, pinch-outs, or other potential pathways for out-of-zone migration indicated by the thickness map.

9. In this proposed CLGC Project, the Avogato 30-31 State Com 11H, 13H, and 14H wells will inject into the Avalon Shale at an average total vertical depth of approximately 9,500 feet across the length of the well's horizontal wellbore, which has a lateral length of approximately 10,000 feet. The proposed injection interval is an unconventional reservoir composed of very fine-grained quartz-rich and brittle siltstone. *See Exhibit A* at 85. Low-permeability barriers to fluid flow exist within the Bone Spring Formation above and below the Avalon Shale. Below the Avalon Shale is the First Bone Spring Lime, a low permeability, approximately 100-foot thick carbonate-rich interval which provides isolation from the underlying productive First Bone Spring Sand.

Above the Avalon Shale, the Bone Spring Formation consists of fine-grained siltstones, carbonate mudstone and dolomudstone that have very low permeabilities and an average thickness of 250 feet and provide isolation from the overlying productive Avalon Sand and Brushy Canyon Formation. Above the Brushy Canyon Formation are impermeable anhydrite, gypsum, and salt layers of the Castile, Salado, and Rustler Formations. Due to the thickness of multiple impermeable rock layers above the injection reservoir there is little possibility for migration upward into freshwater aquifers where they exist.

10. Laterally, the injection will be contained in the reservoir volume that has been previously and partially depleted by the CLGC wells. The low-permeability reservoir will be the primary constraint on movement of the injection gas and is expected to contain the injected gas within the pilot project area. *See Exhibit A* at 85.

11. My analysis concludes that the Bone Spring formation in this area is suitable for the proposed CLGC Project and that there are geologic barriers that will contain the proposed injection within the Bone Spring formation. *See Exhibit A* at 80-86.

12. I have examined the available geologic and engineering data and found no evidence of open faults or other hydrologic connections between the injection zone and any underground source of drinking water. *See Exhibit A* at 86.

13. In my opinion, the granting of OXY's application in this case is in the best interest of conservation, the prevention of waste, and protection of correlative rights.

FURTHER AFFIANT SAYETH NOT.

Peter Senior
Peter Senior

STATE OF TEXAS)
)
COUNTY OF HARRIS)

SUBSCRIBED and SWORN to before me this 27th day of JULY, 2021 by
PETER SENIOR.



[Signature]
NOTARY PUBLIC
KIM HOFFMAN

My Commission Expires:
JULY 10, 2023

Peter Senior

Education:

- Kansas State University
 - > B.S. Geology -2009
- University of Kansas
 - > M.S. Geology- 2012

Experience:

- Oxy, Inc- 2012-Present
 - > Production & Development Geologist in Texas (2012-2020)
 - > Production & Development Geologist in New Mexico (2020-Present)

BEFORE THE OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Exhibit No. C1
Submitted by: OXY USA INC.
Hearing Date: August 05, 2021
Case No. 22088



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

APPLICATION OF OXY USA INC. FOR A
CLOSED LOOP GAS CAPTURE
INJECTION PILOT PROJECT, LEA
COUNTY, NEW MEXICO.

CASE NO. 22088

AFFIDAVIT OF XUEYING XIE

I, Xueying Xie, of lawful age and being first duly sworn, declares as follows:

1. My name is Xueying Xie and I am employed by Oxy USA Inc. ("OXY") as a reservoir engineer.
2. I have not previously testified before the New Mexico Oil Conservation Division as an expert witness. My relevant work experience and educational background are summarized in the curriculum vitae, attached as **Exhibit D-1**.
3. I am familiar with the application filed by OXY in this case and the Division guidance regarding closed loop gas capture injection (CLGC) projects such as this one. I have conducted an engineering study of the reservoir to evaluate the potential effects of the proposed temporary injection on the reservoir and future production. The conclusions I have drawn from my analysis are summarized in pages 86 to 98 in **Exhibit A** attached to OXY's application.
4. I have examined the available geologic and engineering data and found no evidence of open faults or other hydrologic connections between the injection zone and any underground source of drinking water. See **Exhibit A** at 86.
5. The CLGC project will inject produced gas into horizontal wells with 10,000 ft laterals and into the productive zone of the Bone Spring Avalon formation. We applied simulation modeling techniques to investigate gas movement in the injection zone and any

BEFORE THE OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Exhibit No. D
Submitted by: OXY USA INC.
Hearing Date: August 05, 2021
Case No. 22088

potential impacts on production performance of the CLGC wells and direct offset wells. The model utilized data from our Cedar Canyon Section 16 Gas EOR Project (“CC 16 EOR Project”) for verification. The CC 16 EOR Project began in 2017. It is located 24 miles away from the Avogato CLGC project area as shown on the maps on page 89. The bottom left box of page 90 shows the reservoir properties and conditions of the Bone Spring formation at the CC 16 EOR Project. In general, the Cedar Canyon and Avogato areas have very similar reservoir properties, except the Avalon Shale in Avogato has a permeability less than 0.001mD. The section, location, and well layout for the CC 16 EOR Project are shown on page 89. In this EOR project, Cedar Canyon 16-7H injected produced gas for five months in 2017 at a rate of 7 mmscf/d. After the five months of EOR gas injection, the final surface tubing head pressure was 4100 psi and bottom hole pressure was about 5000 psi. The simulation model incorporated both the primary production history of wells in the CC 16 EOR Project area and the EOR gas injection history with gas communication occurring between the EOR injection well and offset producing wells. During the first three months of EOR gas injection, there was no observed gas communication. However, after three months of EOR gas injection, there was gas communication in offset producers and the model was able to predict it. This gives us confidence in the ability of the model to predict impacts on offset wells resulting from CLGC operations.

6. The reservoir model is a full section model with five wells. The top right of page 90 shows the 3D model grid. It has 56 layers and over a million cells. The four plots in the bottom right show history match results of all five wells in the CC 16 EOR project area. The dots represent historical field data and the curves are modeling results. The first three plots show the primary production match from 2013 to 2017 for all five wells in the section. The green plot shows oil rate match, the blue plot shows water rate match, and the red plot shows gas rate

match. The bottom right plot shows gas injection bottom hole pressure match of EOR gas injection in 2017. The model shows a good match for all rates and pressure.

7. With the high EOR gas injection rates and injection pressures in the CC 16 EOR Project, the reservoir simulation model was created to capture the gas communication between injection wells and the offset producers. This modeling improved our understanding of the complexity of connected fractures based on actual field response. The model was used to simulate the effects of CLGC operations in the Avogato and other areas, since the reservoirs have similar properties. We believe the model should be able to predict communication caused by CLGC operations because it was “tuned” based on actual gas communication between wells. First, we created a base case for normal production without any gas injection. Then we ran numerous gas injection cases to simulate CLGC operations and compared those with the base case to determine the impact on well production rate and recovery in both CLGC wells and offset wells. To further validate our injection rate assumptions, we integrated the reservoir model with a Prosper wellbore model to predict the injection rate at a wellhead injection pressure of 1200 psi. The results are shown on the plot of page 92. For a 10,000 ft lateral length well (representative of our proposed Avogato CLGC wells), 3 mmscf/day is the predicted max injection rate. It declines to about 50% of the initial value after three weeks. Despite the injection rate decline over time, Oxy ran all cases in the model with flat injection rates to simulate worst-case scenarios. The results of these model runs are shown on page 95 and discussed more fully below.

8. Reservoir modeling indicates the horizontal movement of injected gas is anticipated to be approximately 100 feet or less from each CLGC wellbore within the Bone Spring formation. See *Exhibit A* at 93. This is illustrated by comparing gas

saturation pre-injection and post-injection. The top left plot on page 93 shows pre-injection gas saturation. The wellbores are depicted as east-west lines, and the numerous hydraulic fractures created in each wellbore are shown as NE-SW angled lines. The blue color shows no gas while the cyan color shows gas exists in the fractures. A warmer color indicates a higher gas saturation. The middle plot shows gas saturation after one week of injection. The gas injected into the middle well and the fractures near wellbore show a warmer color. The bottom plots have a magnified view of the CLGC well gas saturation for a clearer comparison. We can clearly see that the fractures near wellbore in the injection case have a warmer color than those of the pre-injection case. Additionally, further away from the CLGC wellbore, there is no gas saturation change in the fractures even though there are connected fractures between wells. This is because the injected gas volume during CLGC operations is too small to move very far away from the CLGC wellbore. And even when we have fracture communication between wells, there is not very high conductivity for immediate gas communication as was observed in our CC 16 EOR project which had a much higher injection rate and pressure. The gas storage injection in Avogato will inject at a much lower rate (<3 mmscf/d) for a shorter period of time with much lower tubing head pressure (1200psi) compared with CC 16 EOR Project in 2017, so it is not unexpected that the model shows no gas communication. Finally, after a long period of production following a gas storage event, the gas saturation in the near wellbore of CLGC wells is restored to pre-injection values as shown in the plot on the upper right of page 93. This is because the majority of injected gas has been recovered.

9. The pressure map plots of page 94 tell the same story as the gas saturation map plots. With gas injection, the pressure increases only in the fractures nearest the wellbore within 100 feet of the CLGC well.

10. We modeled all possible CLGC scenarios including different well spacing (from 4-8 Wells Per Section, or “WPS”), single well injection, multi-well injection, and a worst case with a higher injection rate and a longer injection period than historical upsets. The modeling results are summarized in the table on page 95 and in each case show no impact. Avogato wells have well spacing of 5 WPS, and the model scenarios even tested narrower spacing of 8 WPS which still shows no impact. For the injection parameters, all possible scenarios— including the worst-case gas storage scenario— have much lower injection volumes and injection pressures compared to CC 16 EOR Project. In conclusion, the analysis indicates that there will be no change in the oil recovery from each of its proposed injection wells or from any of the offsetting wells because of CLGC operations. *See id.* at 95.

11. As a cross-check of the model results, I prepared an analysis of the expected gas storage capacity in the fracture network of the CLGC well relative to the gas injection volumes for the worst-case injection scenario lasting twenty days. *See Exhibit A* at 96. My analysis confirms that whether the capacity is estimated based on the fracture volume gas equivalent, or the total gas equivalent volumes produced from the proposed injection zone, the anticipated gas injection volumes will be considerably less than the estimated volume capacity for gas storage within the project area.

12. Fracture dimensions are predicted by a fracture model software package called Gohfer, which is based on reservoir geo-mechanical properties and actual well

hydraulic fracturing procedure history matching. The fracture dimensions for an Avalon well are shown at page 97. The top three rows of the table on the right show Stimulated Reservoir Volume (SRV) for each individual CLGC well, which is around 2.4 billion cubic feet.

13. In my analysis, examining the available geologic and engineering data, I have determined that the total recoverable volume of hydrocarbons from the reservoir will not be adversely affected by the pilot project and that the gas composition of the injected gas will not damage the reservoir. See *Exhibit A* at 98.

14. **OXY Exhibit D-1** and pages 86 through 98 of **Exhibit A** were either prepared by me or compiled under my direction and supervision.

FURTHER AFFIANT SAYETH NOT.

Xueying Xie
Xueying Xie

STATE OF TEXAS)
)
COUNTY OF HARRIS)

SUBSCRIBED and SWORN to before me this 22nd day of JULY, 2021, by
XUEYING XIE.



[Signature]
NOTARY PUBLIC Kim Hoffman

My Commission Expires:
JULY 10, 2023

Xueying Xie

Rice University, Graduate 2005

- Chemical Engineering PhD

Shell, 2005 – 2016

- Reservoir Engineer for multiple geographic areas/reservoirs and drive mechanisms for a full value chain from exploration to development to production

Oxy, 2016 - Present

- Unconventional Technical Manager in New Mexico

BEFORE THE OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Exhibit No. D1
Submitted by: OXY USA INC.
Hearing Date: August 05, 2021
Case No. 22088