

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

**APPLICATION OF CAZA PETROLEUM, LLC
FOR COMPULSORY POOLING, LEA COUNTY,
NEW MEXICO.**

Case No. 20281

**APPLICATION OF CAZA PETROLEUM, LLC
FOR COMPULSORY POOLING, LEA COUNTY,
NEW MEXICO.**

Case No. 20282

VERIFIED STATEMENT OF RICHARD CARROLL

Richard Carroll, being duly sworn upon his oath, deposes and states:

1. I am over the age of 18, and have personal knowledge of the matters stated herein. I am a geologist for Caza Petroleum, LLC ("Caza). I have been qualified by the Division as an expert petroleum geologist.

2. The following plats are attached hereto:

(a) Attachment A is a locator map, showing Caza acreage in this area, and the locations of proposed or existing Bone Spring wells, Caza intends to drill the Lennox 34 State Well No. 1H and Lennox State Well No. 2H in the west half of Section 34.

(b) Attachment B is a structure map of the First Bone Spring Sand. It shows that structure dips gently to the east. It also shows a line of cross-section.

(c) Attachment C is an isopach of the First Bone Spring Sand, which has consistent thickness across the well units.

(d) Attachment D is a west-to-east stratigraphic cross section of the First Bone Spring Sand, and Attachment E is a west-to-east structural cross section of the First Bone Spring Sand. The well logs on the cross-section give a representative sample of the Bone Spring formation in this area. The target zone for the well is the First Bone Spring Sand.

3. I conclude from the maps that:

(a) The horizontal spacing units are justified from a geologic standpoint.

(b) The target Bone Spring zone is continuous across the well units.



(c) Each quarter section in the units will contribute more or less equally to production from the wells.

(d) There is no faulting or other geologic impediment which will affect the drilling of the subject wells.

4. Other Bone Spring wells drilled in this area are drilled with both standup and laydown units. Caza sees no difference in production whether wells are standup or laydown.

5. Attachments F and G are the horizontal well plans for the wells. The producing interval of each well will be orthodox.

3002545289
Caza Operating LLC
Lennox 34 State #1H
Bottom Hole Location

3002545323
Caza Operating LLC
Lennox 34 State #2H
Bottom Hole Location



ATTACHMENT **A**

43436 6 43255

35832 36644
 358306643

3

4

5

2

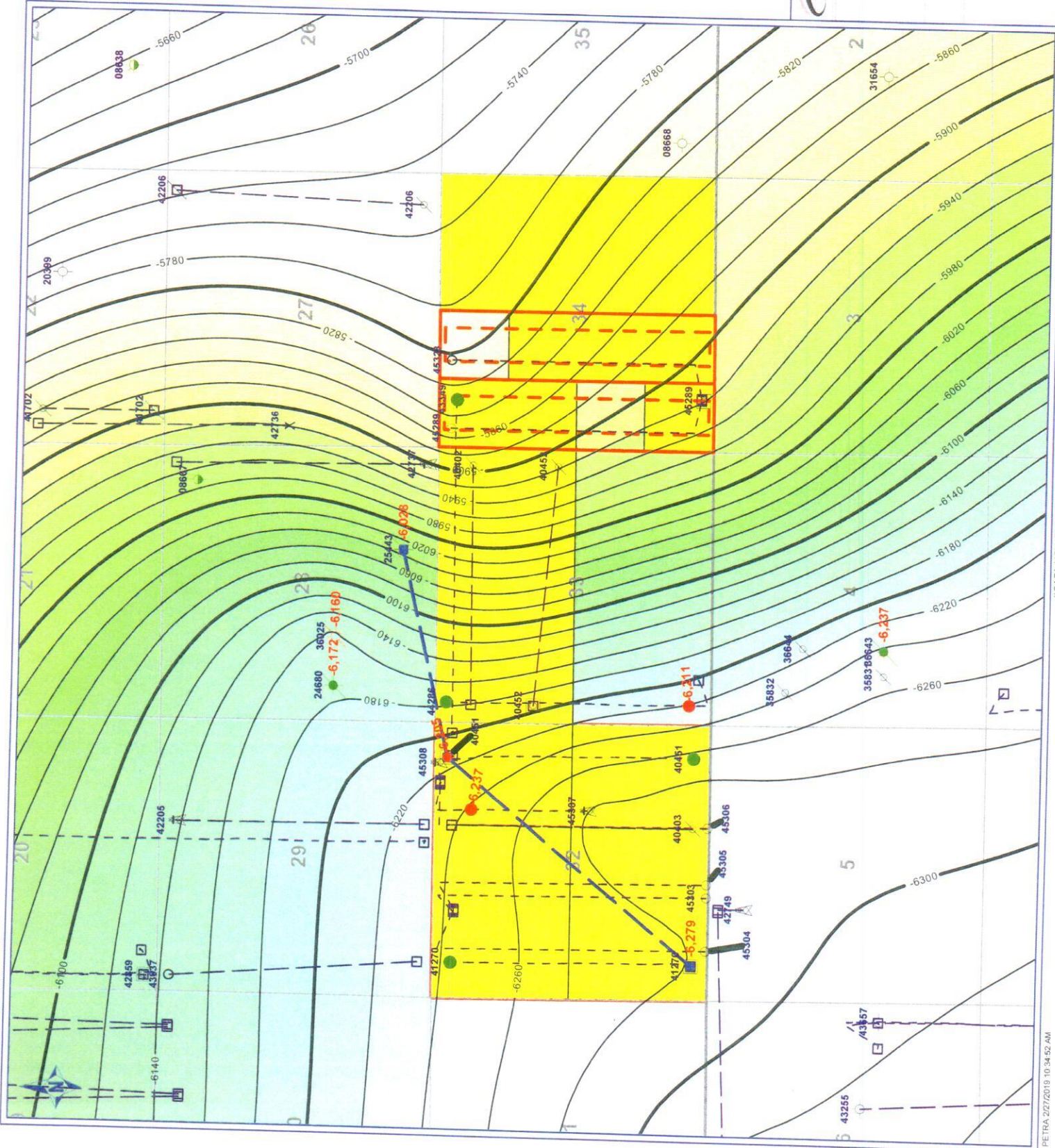
31654

ATTACHMENT **B**

Caza Petroleum
SE NEW MEXICO NAD 83
1st Bone Spring Sand Structure
TVDSS
By RFC
MAP PROJECTION
Datum: North American Datum 1983 (NAD83)

0 2,500
FEET

February 27, 2019



ATTACHMENT C



SE NEW MEXICO NAD 83

1st Bone Spring Sand Isopach

From Top of 1st BSPG to Marker 5

REMARKS

Marker 5 is at the base of the upper sand in the 1st Bone Spring sand section

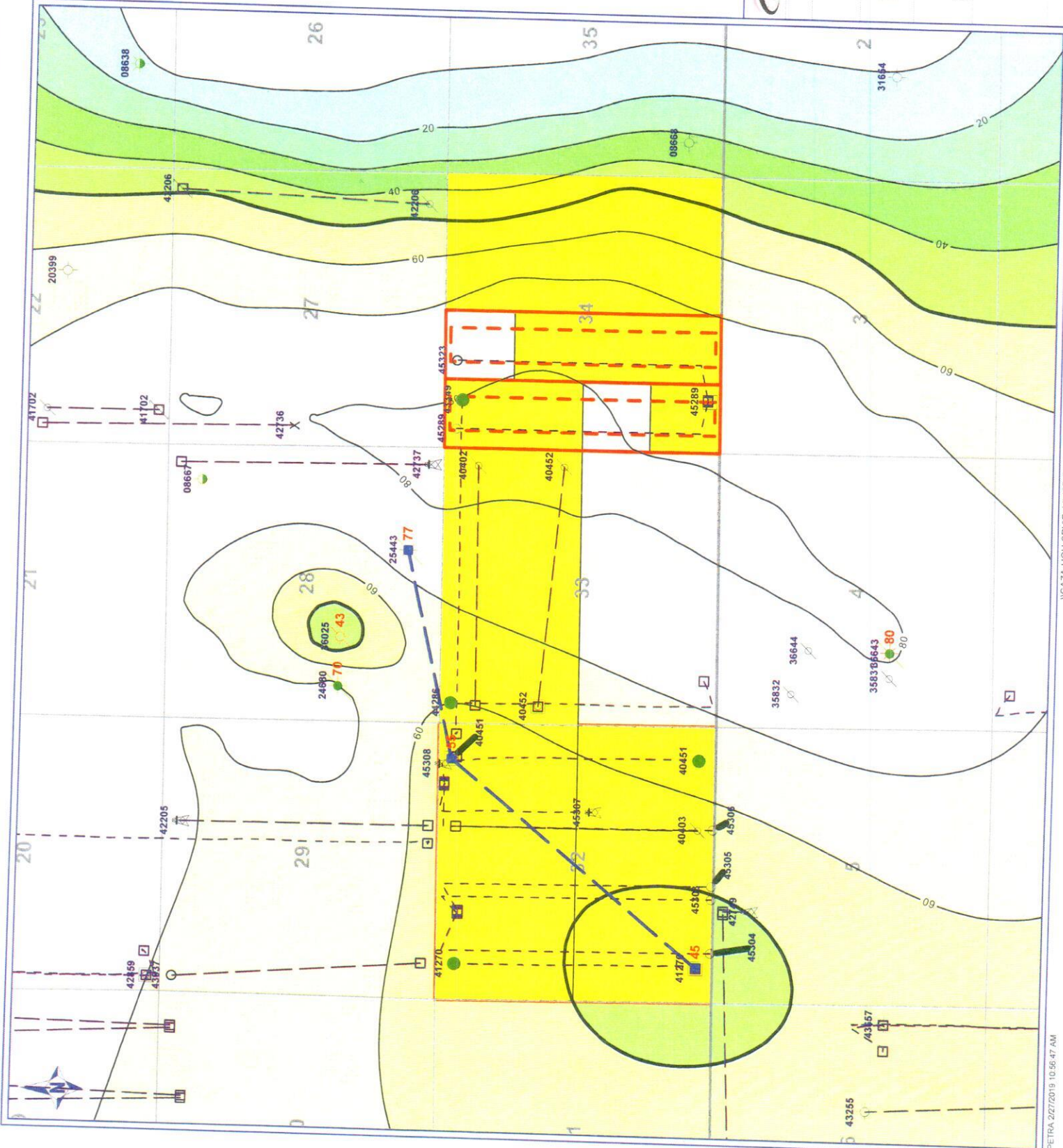
By RFC

MAP PROJECTION

Datum: North American Datum 1983 (NAD83)



February 27, 2019



\\CAZA-HOU-SRVPublic\3D Projects\Petra Projects\SE NEW MEXICO NAD83\OVERLAY\RFC_Lea County Study Area_02-15-19.OVL

30025412700000

1/4 PILOT HOLE
CAZA OPERATING LLC
LENNOX "32" STATE

<6,144FT>

30025404510000

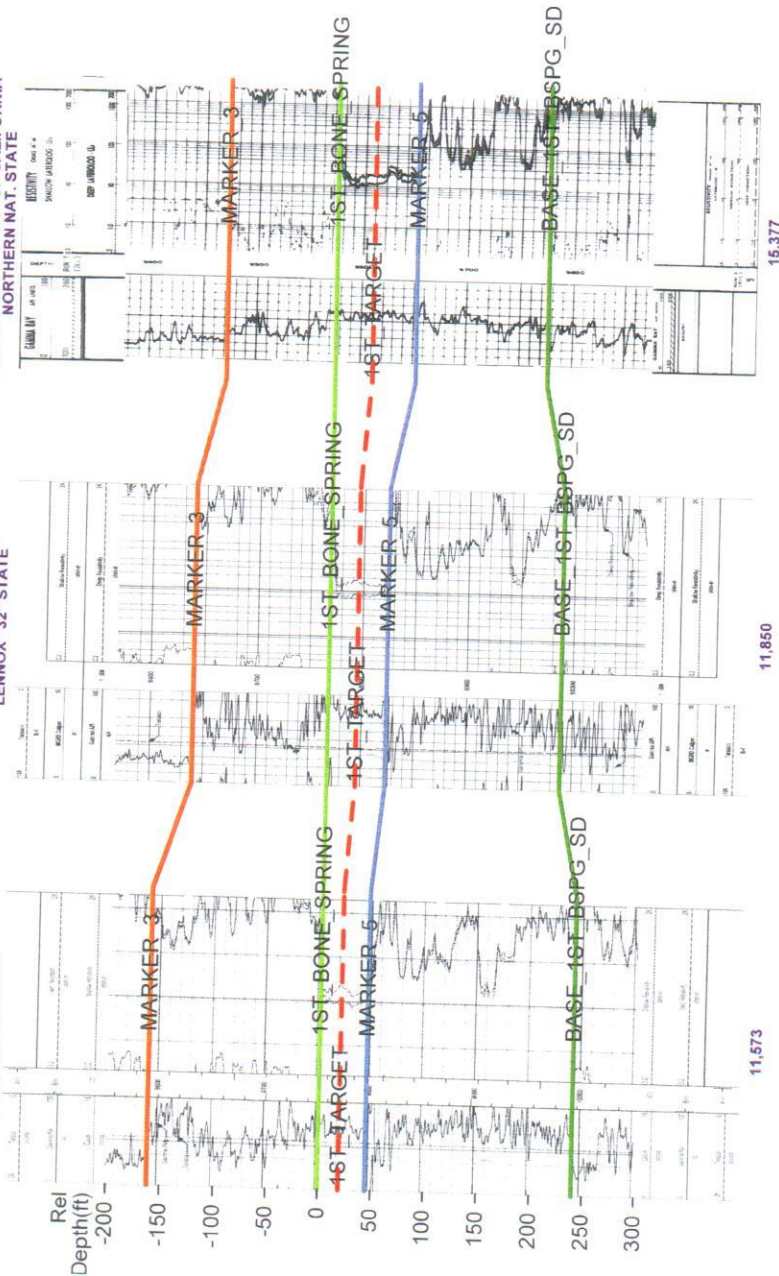
1/2H
CAZA OPERATING LLC
LENNOX "32" STATE

<4,098FT>

30025254430000

UNION OIL COMPANY OF CALIFORNIA
NORTHERN NAT. STATE

Rel
Depth (ft)
-200
-150
-100
-50
-0
-50
-100
-150
-200
-250
-300



ATTACHMENT **D**



SE NEW MEXICO NAD83

- Lennox Area
- 1st Bone Spring Sand
- Stratigraphic Cross Section
- Horizontal Scale = 660.8
- Vertical Scale = 50.0
- Vertical Exaggeration = 13.2x
- TOPS AND MARKERS
- 1ST_TARGET
- MARKER_3
- MARKER_5
- 1ST_BONE_SPRING
- BASE_1ST_BSPG_SD

30025412700000

CAZA OPERATING LLC
LENNOX "32" STATE

<6,144FT>

30025404510000

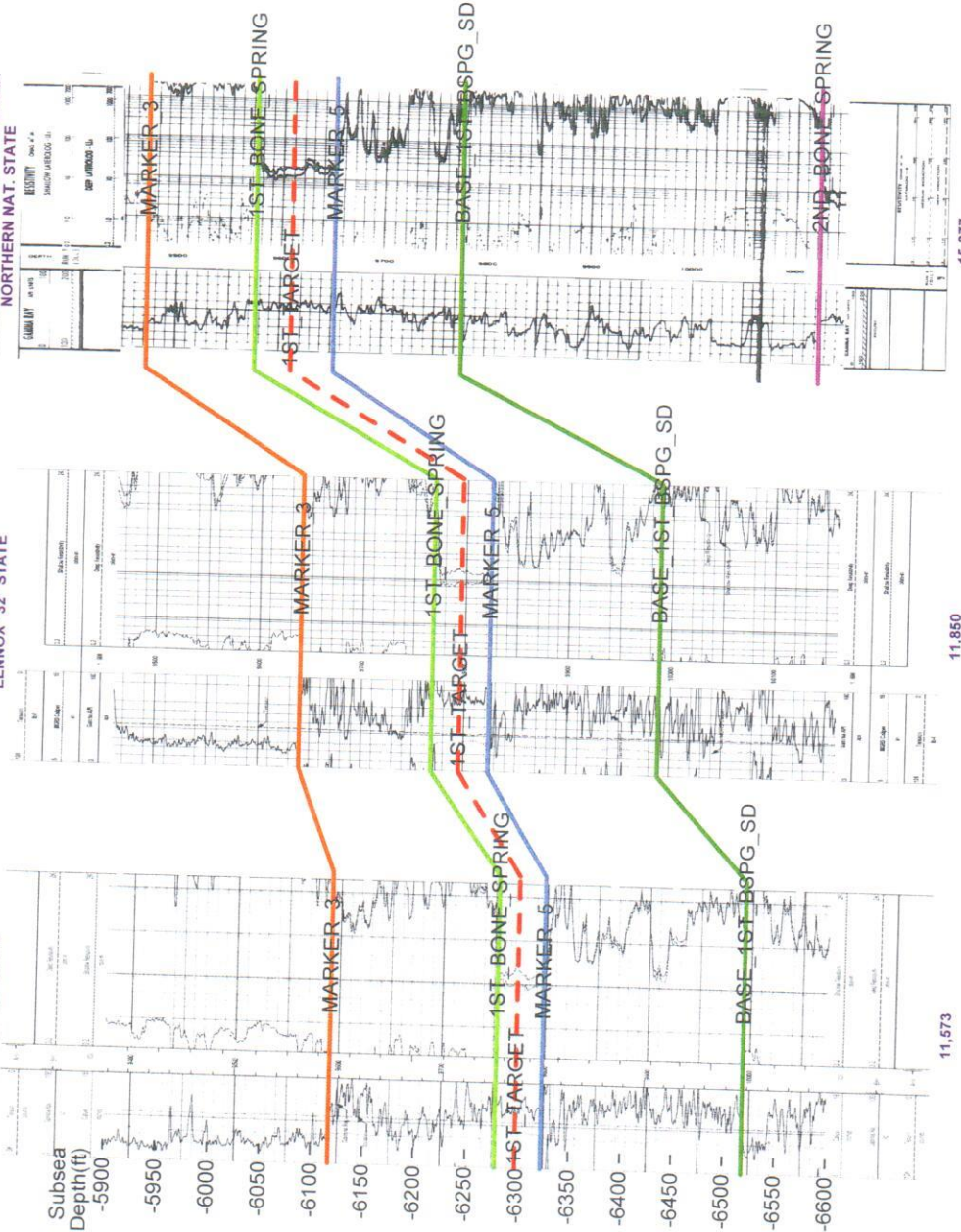
CAZA OPERATING LLC
LENNOX "32" STATE

<4,098FT>

30025254430000

UNION OIL COMPANY OF CALIFORNIA
NORTHERN NAT. STATE

Subsea
Depth(ft)
-5900
-5950
-6000
-6050
-6100
-6150
-6200
-6250
-6300
-6350
-6400
-6450
-6500
-6550
-6600



11,573

11,850

15,377



SE NEW MEXICO NAD83

Lennox Area

1st Bone Spring Sand

Structural Cross Section

Horizontal Scale = 656.5

Vertical Scale = 50.0

Vertical Exaggeration = 13.1x

TOPS AND MARKERS

- 1ST_TARGET
- MARKER_3
- MARKER_5
- 1ST_BONE_SPRING
- BASE_1ST_BSPG_SD
- 2ND_BONE_SPRING

ATTACHMENT E

Project: Lennox 34 State 1H
 Site: Lennox 34 State 1H
 Well: Lennox 34 State 1H
 Wellbore: Lennox 34 State 1H
 Design: 190228 Lennox 34 State 1H



Azimuths to Grid North
 True North: -0.52°
 Magnetic North: 6.06°

Magnetic Field
 Strength: 47970.7snT
 Dip Angle: 60.14°
 Date: 10/24/2018
 Model: IGRF2010

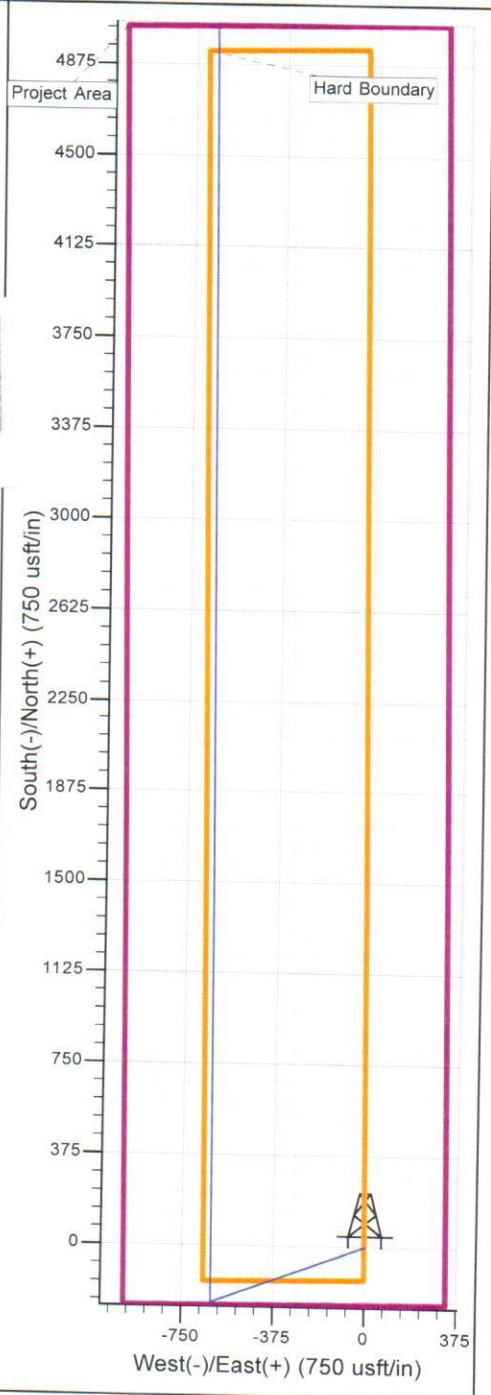
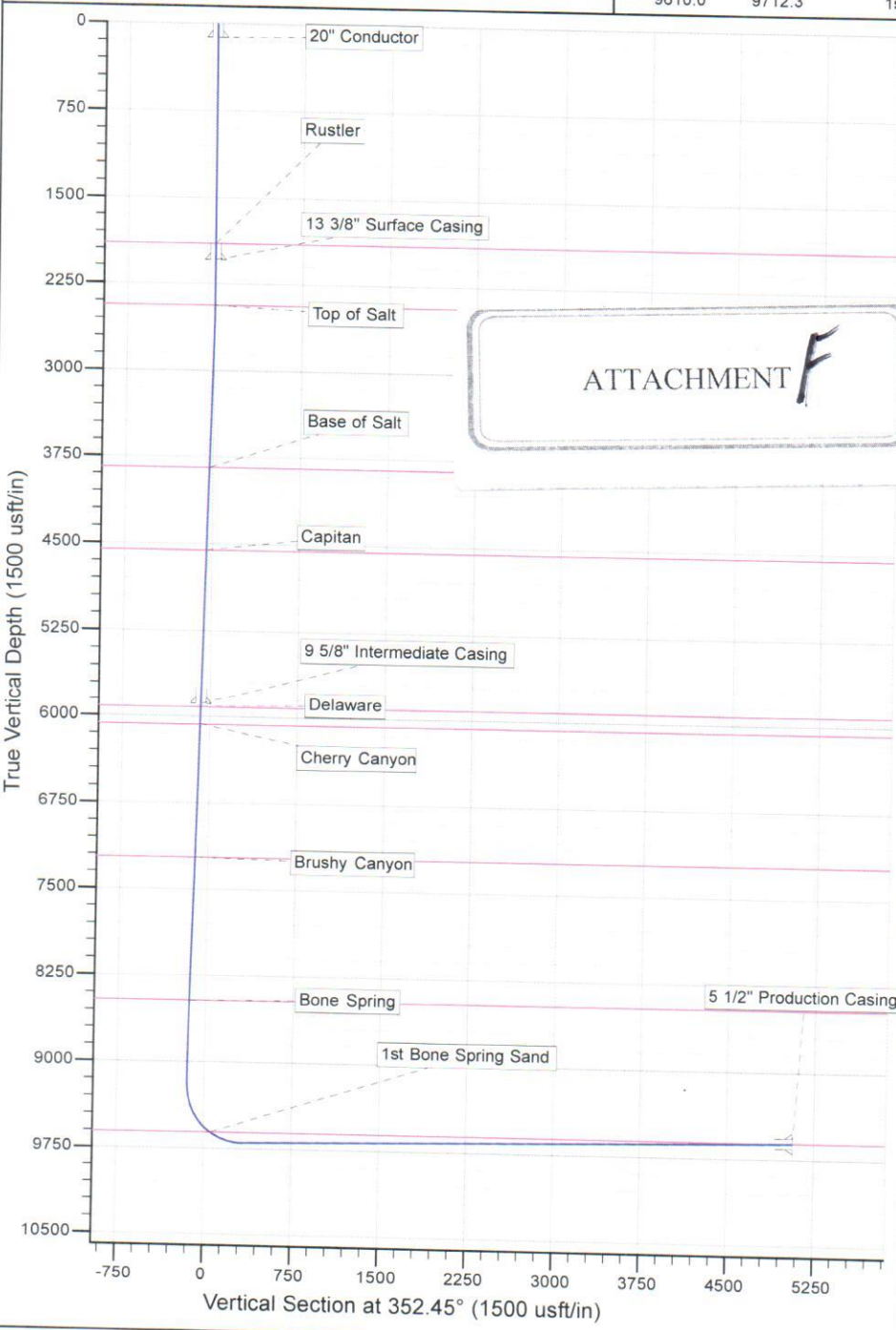
CASING DETAILS

TVD	MD	Name	Size
120.0	120.0	20" Conductor	20
2045.0	2045.0	13 3/8" Surface Casing	13-3/8
5890.0	5908.1	9 5/8" Intermediate Casing	9-5/8
9608.0	14781.0	5 1/2" Production Casing	5-1/2

FORMATION TOP DETAILS

TVDPPath	MDPath	Formation	DipAngle	DipDir
1905.0	1905.0	Rustler	0.00	
2435.0	2435.0	Top of Salt	0.00	
3845.0	3851.8	Base of Salt	0.00	
4555.0	4565.7	Capitan	0.00	
5915.0	5933.2	Delaware	0.00	
6065.0	6084.0	Cherry Canyon	0.00	
7225.0	7250.4	Brushy Canyon	0.00	
8465.0	8497.3	Bone Spring	0.00	
9610.0	9712.3	1st Bone Spring Sand	0.00	

ATTACHMENT F



Last Updated: 3/2/2019 09:12 AM

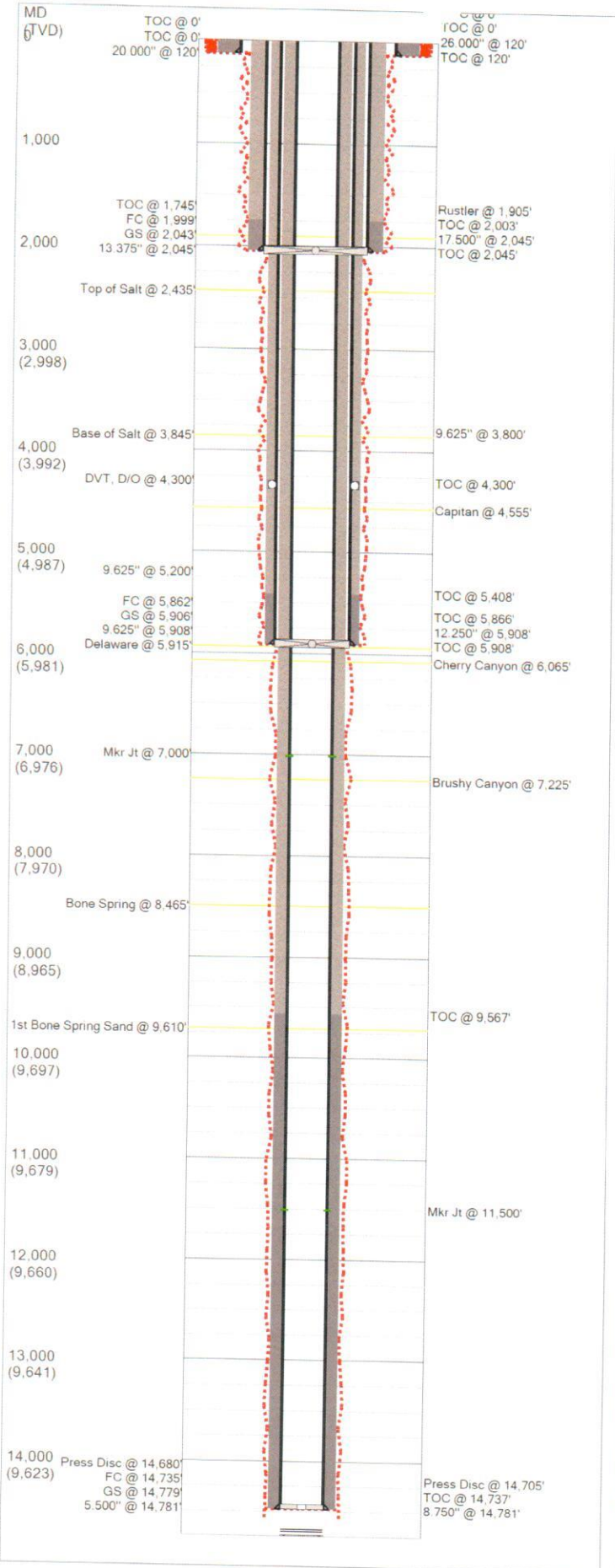


Field Name		Lease Name		Well No.	
Rock Lake		Lennox 34 State		1H	
County			State		API No.
Lea			New Mexico		30-025-45289
Version		Version Tag			
1		Planned			
GL (ft)	KB (ft)	Section	Township/Block	Range/Survey	
3,523.0	3,545.0	34	22S	35E	
Operator		Well Status		Latitude	Longitude
Caza Operating		Planned		32.341623	-103.360778
Dist. N/S (ft)	N/S Line	Dist. E/W (ft)	E/W Line	Footage From	
240	FSL	990	FWL	SECTION	
Prop Num			Spud Date		Comp. Date
322763					
Additional Information					
DIRECTIONS TO LOCATION: FROM EUNICE CITY LIMITS GO SOUTH ON ST. HWY. 207 APPROX. 2.0 MILES TO CO. RD. 21(DELAWARE BASIN), TURN RIGHT AND GO WEST APPROX. 16.9 MILES TO CALICHE LEASE ROAD, TURN RIGHT AND GO NORTH APPROX. 0.1 MILE TO ACCESS ROAD SURVEY FOLLOW SURVEY EAST 816.3 FEET TO THIS PAD.					
OGRID		Pool Name and Code		Well Type	
249099		Rock Lake; Bone Spring (52766)		Hz, Oil	
				Dedicated Acres	
				160	
Prepared By		Updated By		Last Updated	
Steve Morris		Steve Morris		3/2/2019 9:12 AM	

Hole Summary				
Date	Diam. (in)	Top (MD ft)	Bottom (MD ft)	Comments
	26.000	0	120	
	17.500	120	2,045	
	12.250	2,045	5,908	
	8.750	5,908	14,781	

Tubular Summary						
Date	Description	O.D. (in)	Wt (lb/ft)	Grade	Top (MD ft)	Bottom (MD ft)
	Conductor Casing	20.000	94.00	H40	0	120
	Surface Casing	13.375	54.50	J55	0	2,045
	Intermediate Casing	9.625	40.00	J55	0	3,800
	Intermediate Casing	9.625	40.00	L80	3,800	5,200
	Intermediate Casing	9.625	40.00	HCL80	5,200	5,908
	Production Casing	5.500	17.00	P110	0	14,781

Casing Cement Summary						
C	Date	No. Sx	Csg. O.D. (in)	Top (MD ft)	Bottom (MD ft)	Comments
	2/1/2019	100	20.000	0	120	
	2/2/2019	90	13.375	0	120	Casing in Casing No Excess
	2/3/2019	1,393	13.375	120	1,745	Casing in Open Hole 100% Excess
	2/4/2019	222	13.375	1,745	2,045	Casing in Open Hole 100% Excess
	2/5/2019	27	13.375	2,003	2,045	Shoe Track No Excess
	2/6/2019	397	9.625	0	2,045	Casing in Casing No Excess
	2/7/2019	745	9.625	2,045	4,300	Casing in Open Hole 100% Excess
	2/8/2019	371	9.625	4,300	5,408	Casing in Open Hole 100% Excess
	2/9/2019	232	9.625	5,408	5,908	Casing in Open Hole 100% Excess



C	Date	No. Sx	Csg. O.D. (in)	Top (MD ft)	Bottom (MD ft)	Comments
	2/10/2019	13	9.625	5,866	5,908	Shoe Track No Excess
	2/11/2019	691	5.500	0	5,908	Casing in Casing No Excess
	2/12/2019	829	5.500	5,908	9,567	Casing in Open Hole 100% Excess
	2/13/2019	2,416	5.500	9,567	14,781	Casing in Open Hole 50% Excess
	2/14/2019	5	5.500	14,737	14,781	Shoe Track No Excess

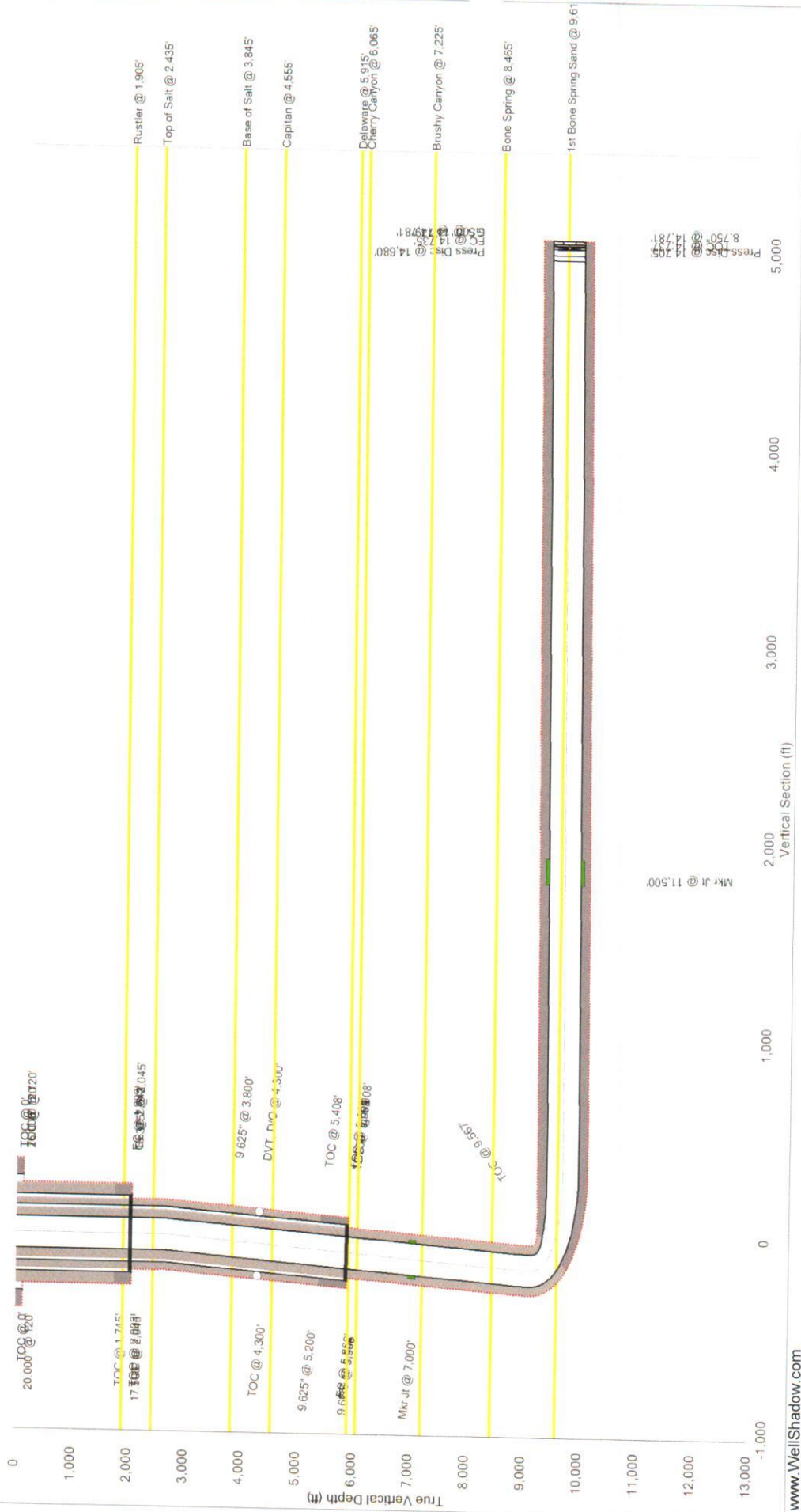
Tools/Problems Summary

Date	Tool Type	O.D. (in)	I.D. (in)	Top (MD ft)	Bottom (MD ft)
	FC	13.375	0.000	1,999	0
	GS	13.375	0.000	2,043	0
	DVT, D/O	9.625	0.000	4,300	0
	FC	9.625	0.000	5,862	0
	GS	9.625	0.000	5,906	0
	Mkr Jt	5.500	0.000	7,000	7,021
	Mkr Jt	5.500	0.000	11,500	11,521
	Press Disc	5.500	0.000	14,680	0
	Press Disc	5.500	0.000	14,705	0
	FC	5.500	0.000	14,735	0
	GS	5.500	0.000	14,779	0

Formation Tops Summary

Formation	Top (TVD ft)	Comments
Rustler	1,905	
Top of Salt	2,435	
Base of Salt	3,845	
Capitan	4,555	
Delaware	5,915	
Cherry Canyon	6,065	
Brushy Canyon	7,225	
Bone Spring	8,465	
1st Bone Spring Sand	9,610	

Field Name		Lease Name		Well No.		County		State		API No.	
Rock Lake		Lennox 34 State		1H		Lea		New Mexico		30025452890000	
Version		Version Tag		Spud Date		Comp. Date		G.L. (ft)		K.B. (ft)	
1		Planned						3,523.0		3,545.0	
Sec.		Township/Block		Range/Survey		Dist. N/S (ft)		N/S Line		E/W Line	
34		22S		35E		240		FSL		990 FWL	
Well Status		PropNum		Operator		Last Updated		Prepared By		Updated By	
Planned		322763		Caza Operating		3/2/2019 9:12:36 AM		Steve Morris		Steve Morris	
Additional Information											
DIRECTIONS TO LOCATION: FROM EUNICE CITY LIMITS GO SOUTH ON ST. HWY. 207 APPROX. 2.0 MILES TO CO. RD. 21(DELAWARE BASIN), TURN RIGHT AND GO WEST APPROX. 16.9 MILES TO CALICHE LEASE ROAD, TURN RIGHT AND GO NORTH APPROX. 0.1 MILE TO ACCESS ROAD SURVEY FOLLOW SURVEY EAST 816.3 FEET TO THIS PAD.											



Project: Lennox 34 State 2H
 Site: Lennox 34 State 2H
 Well: Lennox 34 State 2H
 Wellbore: Lennox 34 State 2H
 Design: 190302 Lennox 34 State 2H



Azimuths to Grid North
 True North: -0.52°
 Magnetic North: 6.06°

Magnetic Field
 Strength: 47968.2snT
 Dip Angle: 60.14°
 Date: 11/2/2018
 Model: IGRF2010

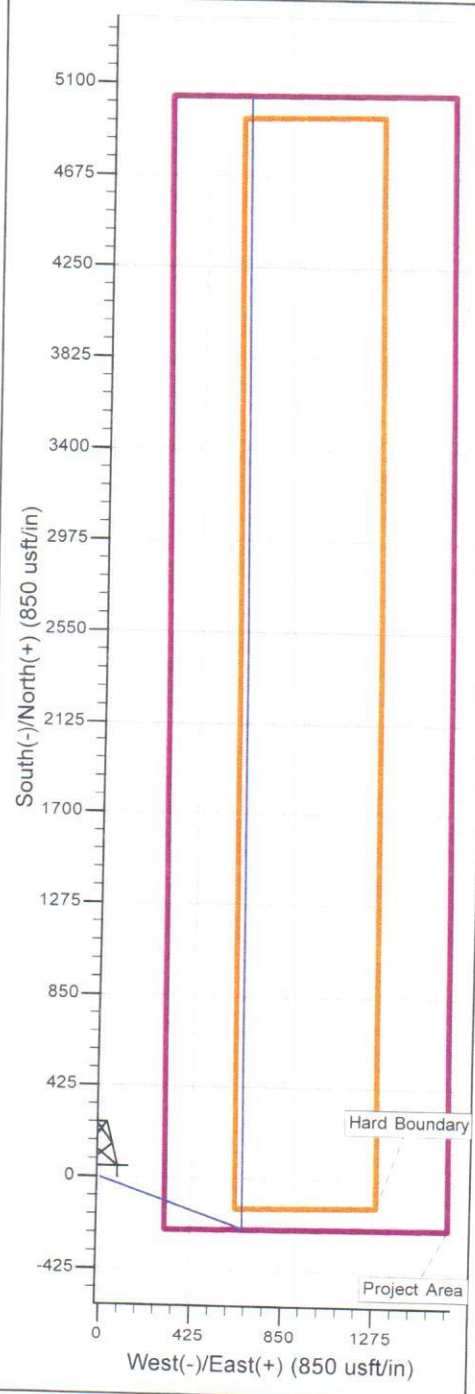
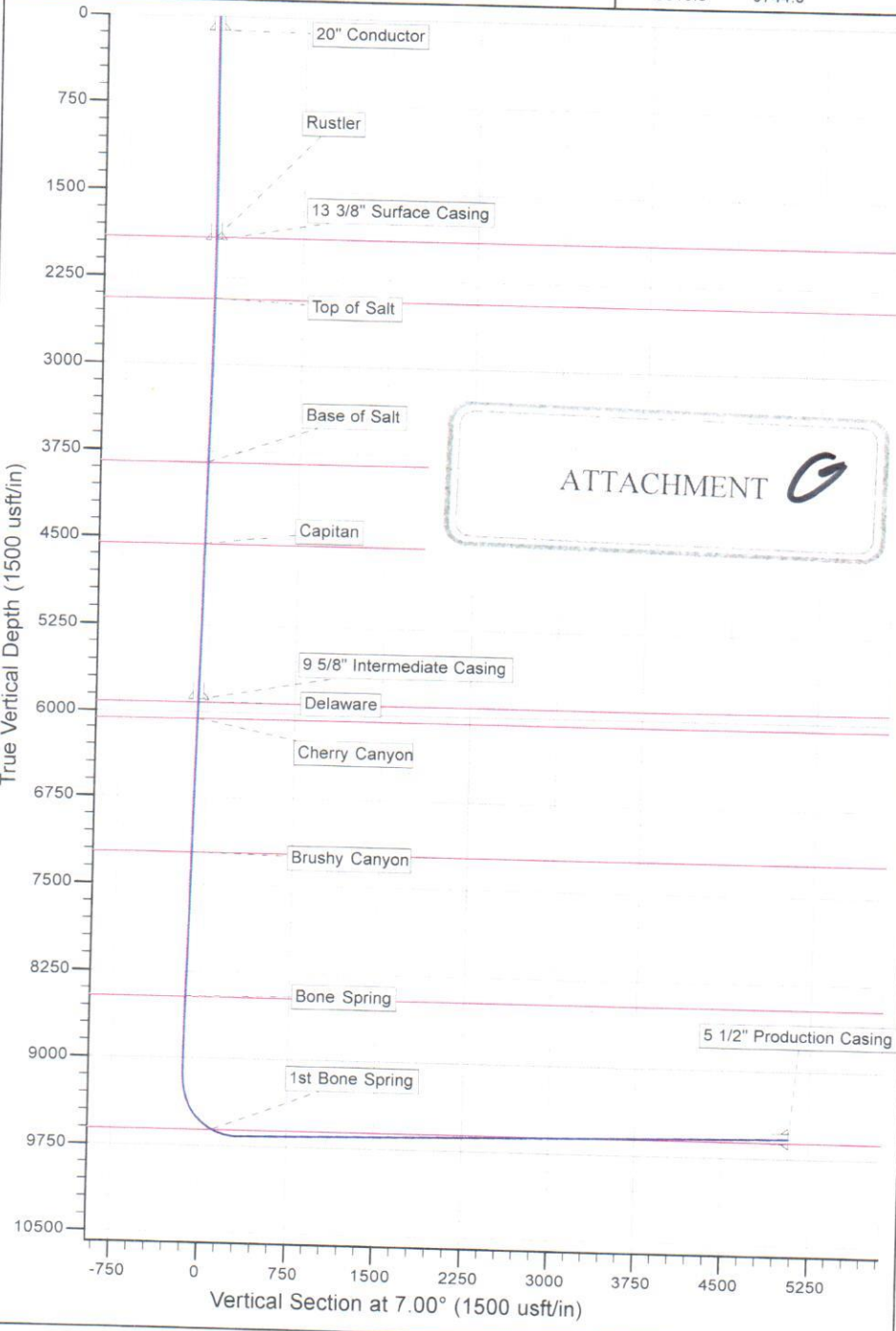
CASING DETAILS

TVD	MD	Name	Size
120.0	120.0	20" Conductor	20
1930.0	1930.0	13 3/8" Surface Casing	13-3/8
5890.0	5909.9	9 5/8" Intermediate Casing	9-5/8
9575.0	14755.0	5 1/2" Production Casing	5-1/2

FORMATION TOP DETAILS

Formation	DipAngle	DipDir
Rustler	0.00	
Top of Salt	0.00	
Base of Salt	0.00	
Capitan	0.00	
Delaware	0.00	
Cherry Canyon	0.00	
Brushy Canyon	0.00	
Bone Spring	0.00	
1st Bone Spring	0.00	

TVDPath	MDPath
1905.0	1905.0
2435.0	2435.8
3845.0	3853.6
4555.0	4567.5
5915.0	5935.0
6065.0	6085.8
7225.0	7252.2
8465.0	8499.1
9610.0	9744.3



Last Updated: 3/2/2019 9:14 AM

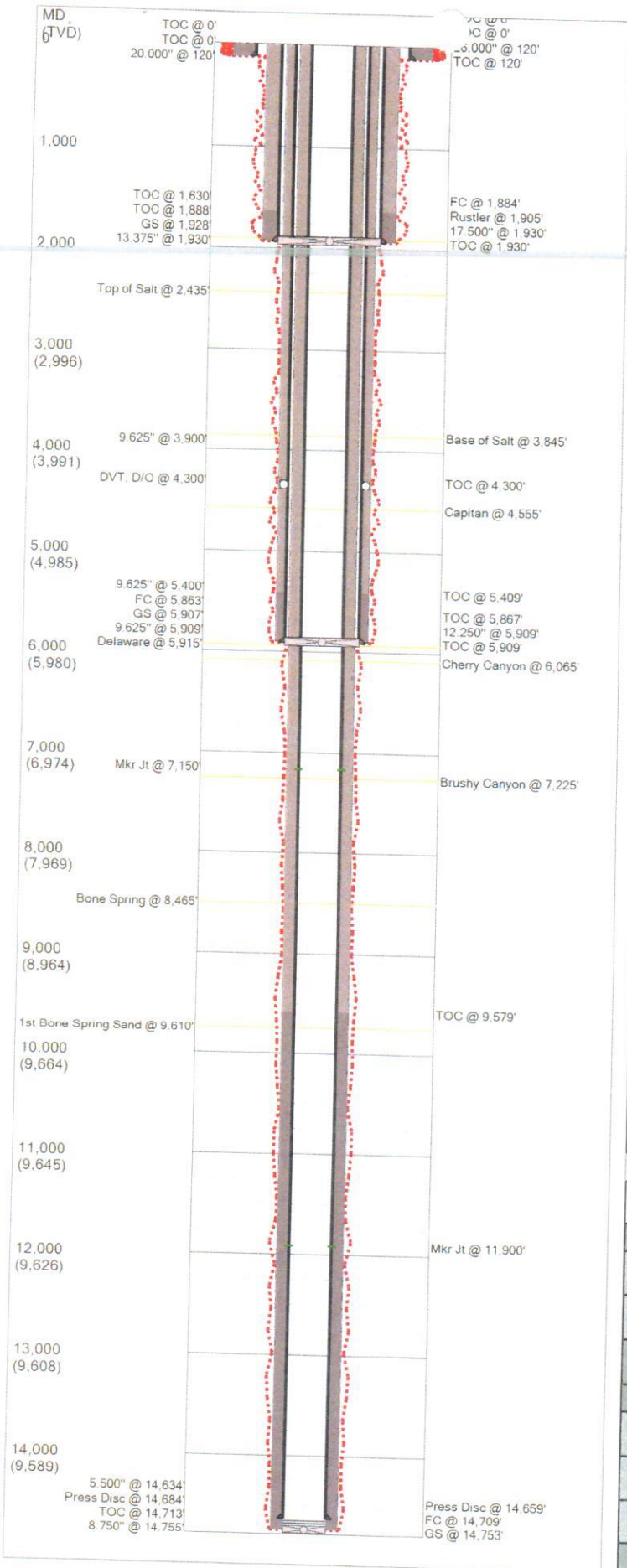


Field Name		Lease Name		Well No.	
Lennox		Lennox 34 State		2H	
County			State		API No.
Lea			New Mexico		30-025-45323
Version		Version Tag			
1		Planned			
GL (ft)	KB (ft)	Section	Township/Block		Range/Survey
3,539.0	3,561.0	34	22S		35E
Operator		Well Status		Latitude	Longitude
Caza Operating		Planned		32.355204	-103.384814
Dist. N/S (ft)	N/S Line	Dist. E/W (ft)	E/W Line	Footage From	
100	FNL	1140	FEL	SECTION	
Prop Num			Spud Date		Comp. Date
322763					
Additional Information					
DIRECTIONS TO LOCATION: FROM EUNICE CITY LIMITS GO SOUTH ON ST. HWY. 207 APPROX. 2.0 MILES TO CO. RD. 21(DELAWARE BASIN), TURN RIGHT AND GO WEST APPROX. 16.9 MILES TO CALICHE LEASE ROAD, TURN RIGHT AND GO NORTH APPROX. 0.1 MILE TO ACCESS ROAD SURVEY FOLLOW SURVEY EAST 816.3 FEET TO THIS PAD.					
OGRID		Pool Name and Code		Well Type	
249099		Rock Lake; Bone Spring (52766)		Hz, oil	
Prepared By		Updated By		Last Updated	
Steve Morris		Steve Morris		3/2/2019 9:14 AM	

Hole Summary					
Date	Diam. (in)	Top (MD ft)	Bottom (MD ft)	Comments	
	26.000	0	120		
	17.500	120	1,930	Fresh Water	
	12.250	1,930	5,909	Cut Brine	
	8.750	5,909	14,755	OBM	

Tubular Summary						
Date	Description	O.D. (in)	Wt (lb/ft)	Grade	Top (MD ft)	Bottom (MD ft)
	Conductor Casing	20.000	94.00	H40	0	120
	Surface Casing	13.375	54.50	J55	0	1,930
	Intermediate Casing	9.625	40.00	J55	0	3,900
	Intermediate Casing	9.625	40.00	L80	3,900	5,400
	Intermediate Casing	9.625	40.00	HCL80	5,400	5,909
	Production Casing	5.500	17.00	P110	0	14,634

Casing Cement Summary						
C	Date	No. Sx	Csg. O.D. (in)	Top (MD ft)	Bottom (MD ft)	Comments
	2/1/2019	100	20.000	0	120	
	2/2/2019	90	13.375	0	120	Casing in Casing No Excess
	2/3/2019	1,295	13.375	120	1,630	Casing in Open Hole 100% Excess
	2/4/2019	222	13.375	1,630	1,930	Casing in Open Hole 100% Excess
	2/5/2019	27	13.375	1,888	1,930	Shoe Track No Excess
	2/6/2019	374	9.625	0	1,930	Casing in Casing No Excess
	2/7/2019	794	9.625	1,930	4,300	Casing in Open Hole 100% Excess
	2/8/2019	371	9.625	4,300	5,409	Casing in Open Hole 100% Excess
	2/9/2019	232	9.625	5,409	5,909	Casing in Open Hole 100% Excess



C	Date	No. Sx	Csg. O.D. (in)	Top (MD ft)	Bottom (MD ft)	Comments
	2/10/2019	13	9.625	5,867	5,909	Shoe Track No Excess
	2/11/2019	691	5.500	0	5,909	Casing in Casing No Excess
	2/12/2019	831	5.500	5,909	9,579	Casing in Open Hole 100% Excess
	2/13/2019	2,398	5.500	9,579	14,755	Casing in Open Hole 50% Excess
	2/14/2019	5	5.500	14,713	14,755	Shoe Track No Excess

Tools/Problems Summary

Date	Tool Type	O.D. (in)	I.D. (in)	Top (MD ft)	Bottom (MD ft)
	FC	13.375	0.000	1,884	0
	GS	13.375	0.000	1,928	0
	DVT, D/O	9.625	0.000	4,300	0
	FC	9.625	0.000	5,863	0
	GS	9.625	0.000	5,907	0
	Mkr Jt	5.500	0.000	7,150	7,171
	Mkr Jt	5.500	0.000	11,900	11,921
	Press Disc	5.500	0.000	14,659	0
	Press Disc	5.500	0.000	14,684	0
	FC	5.500	0.000	14,709	0
	GS	5.500	0.000	14,753	0

Formation Tops Summary

Formation	Top (TVD ft)	Comments
Rustler	1,905	
Top of Salt	2,435	
Base of Salt	3,845	
Capitan	4,555	
Delaware	5,915	
Cherry Canyon	6,065	
Brushy Canyon	7,225	
Bone Spring	8,465	
1st Bone Spring Sand	9,610	



Field Name		Lease Name		Well No.		State		API No.	
Lennox		Lennox 34 State		2H		New Mexico		30025453230000	
Version		Version Tag		Spud Date		G.L. (ft)		K.B. (ft)	
1		Planned				3,539.0		3,561.0	
Sec.		Township/Block		Dist. N/S (ft)		E/W Line		Longitude	
34		22S		100 FNL		1140 FEL		-103.384814	
Well Status		PropNum		Last Updated		Prepared By		Updated By	
Planned		322763		3/2/2019 9:14:30 AM		Steve Morris		Steve Morris	
Additional Information									

DIRECTIONS TO LOCATION: FROM EUNICE CITY LIMITS GO SOUTH ON ST. HWY. 207 APPROX. 2.0 MILES TO CO. RD. 21 (DELAWARE BASIN), TURN RIGHT AND GO WEST APPROX. 16.9 MILES TO CALICHE LEASE ROAD, TURN RIGHT AND GO NORTH APPROX. 0.1 MILE TO ACCESS ROAD SURVEY FOLLOW SURVEY EAST 816.3 FEET TO THIS PAD.

