

Project: Lennox 32 State 8H
 Site: Lennox 32 State 8H
 Well: Lennox 32 State 8H
 Wellbore: Lennox 32 State 8H
 Design: 181029 Lennox 32 State 8H



Caza
Petroleum

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Azimuths to Grid North
 True North: -0.51°
 Magnetic North: 6.08°

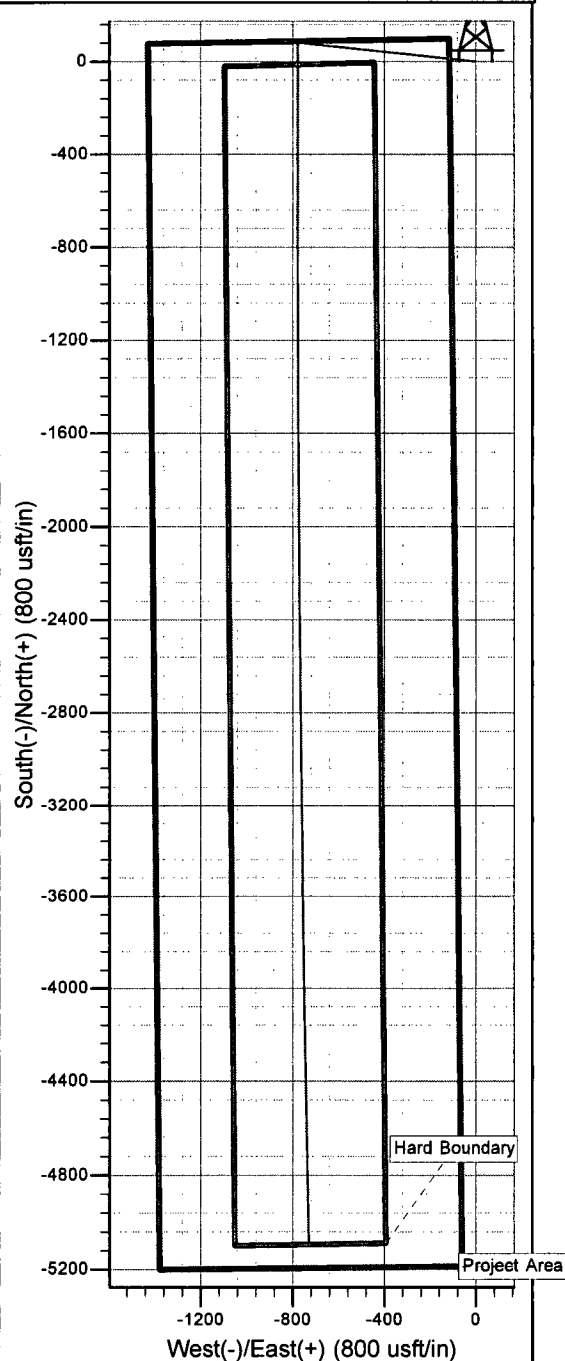
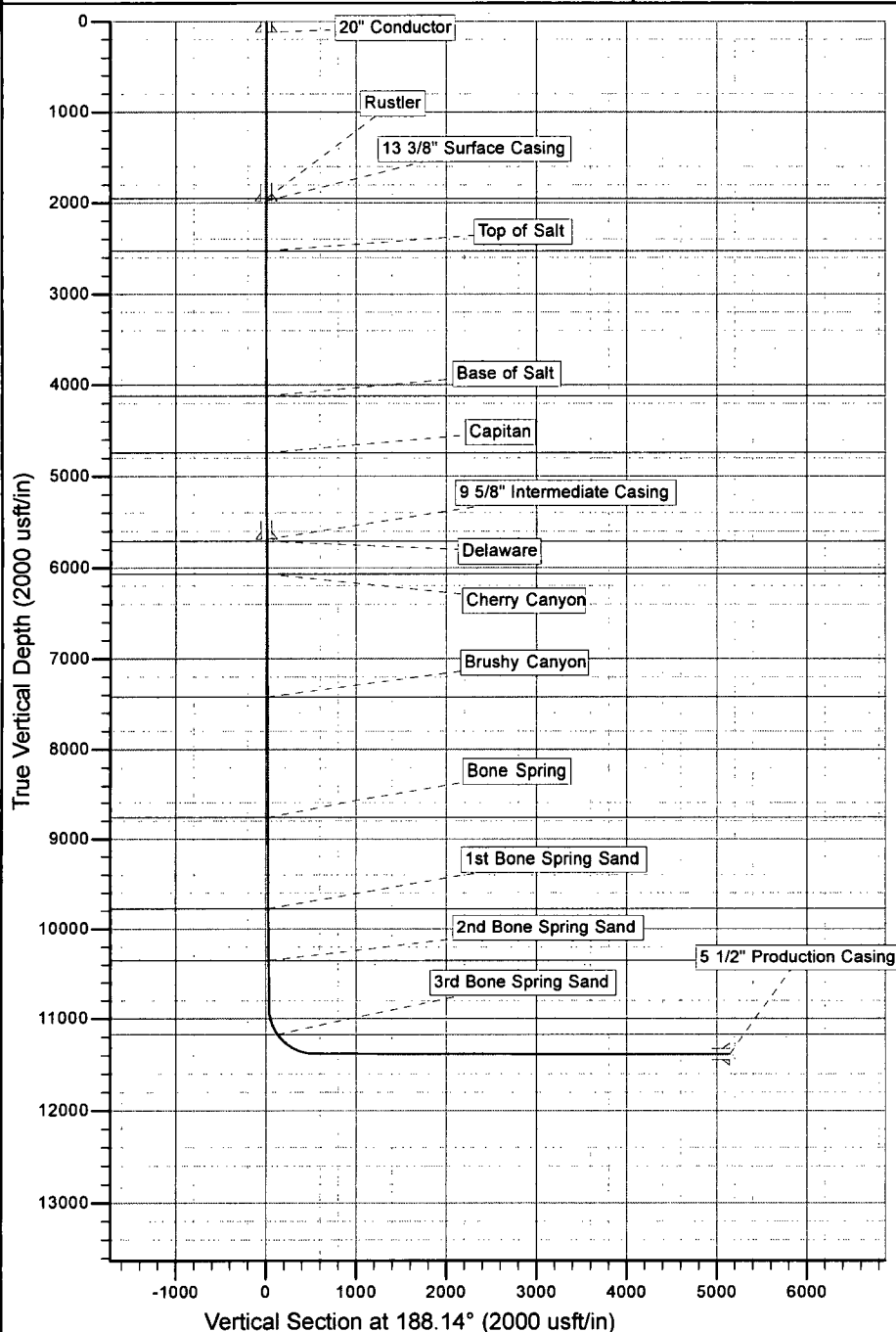
Magnetic Field
 Strength: 47974.9snT
 Dip Angle: 60.15°
 Date: 10/29/2018
 Model: IGRF2010

CASING DETAILS

TVD	MD	Name	Size
120.0	120.0	20" Conductor	20
1978.0	1978.0	13 3/8" Surface Casing	13-3/8
5688.0	5701.1	9 5/8" Intermediate Casing	9-5/8
11389.5	16378.0	5 1/2" Production Casing	5-1/2

FORMATION TOP DETAILS

TVDPATH	MDPATH	Formation	DipAngle	DipDir
1953.0	1953.0	Rustler	0.00	
2528.0	2528.0	Top of Salt	0.00	
4123.0	4127.5	Base of Salt	0.00	
4743.0	4750.9	Capitan	0.00	
5713.0	5726.2	Delaware	0.00	
6068.0	6083.2	Cherry Canyon	0.00	
7423.0	7445.6	Brushy Canyon	0.00	
8758.0	8788.0	Bone Spring	0.00	
9778.0	9813.6	1st Bone Spring Sand	0.00	
10353.0	10391.8	2nd Bone Spring Sand	0.00	
11173.0	11234.9	3rd Bone Spring Sand	0.00	





Caza Operating LLC

Lennox 32 State 8H
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Plan: 181029 Lennox 32 State 8H

Morcor Standard Plan

29 October, 2018

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**MORCOR
ENGINEERING**

Company:	Caza Operating LLC	Local Co-ordinate Reference:	Well Lennox 32 State 8H
Project:	Lennox 32 State 8H	TVD Reference:	WELL @ 3561.0usft (Original Well Elev)
Site:	Lennox 32 State 8H	MD Reference:	WELL @ 3561.0usft (Original Well Elev)
Well:	Lennox 32 State 8H	North Reference:	Grid
Wellbore:	Lennox 32 State 8H	Survey Calculation Method:	Minimum Curvature
Design:	181029 Lennox 32 State 8H	Database:	EDM 5000.1 Single User Db

Project	Lennox 32 State 8H		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Lennox 32 State 8H		
Site Position:		Northing:	494,251.68 usft
From:	Lat/Long	Easting:	834,173.54 usft
Position Uncertainty:	1.0 usft	Slot Radius:	17-1/2 "
		Latitude:	32° 21' 18.731 N
		Longitude:	103° 23' 6.032 W
		Grid Convergence:	0.51 °

Well	Lennox 32 State 8H		
Well Position	+N/-S	0.0 usft	Northing: 494,251.68 usft
	+E/-W	0.0 usft	Easting: 834,173.54 usft
Position Uncertainty		1.0 usft	Wellhead Elevation: usft
			Latitude: 32° 21' 18.731 N
			Longitude: 103° 23' 6.032 W
			Ground Level: 3,539.0 usft

Wellbore	Lennox 32 State 8H		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF2010	10/29/2018	6.59
			Dip Angle (°) 60.15
			Field Strength (nT) 47,975

Design	181029 Lennox 32 State 8H		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth: 0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)
	0.0	0.0	0.0
			Direction (°) 188.14

Survey Tool Program	Date	10/29/2018		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	16,378.0	181029 Lennox 32 State 8H (Lennox 32 S	MWD	MWD - Standard

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Wellbore:	Lennox 32 State 8H	Survey Calculation Method:	Minimum Curvature
Design:	181029 Lennox 32 State 8H	Database:	EDM 5000.1 Single User Db

Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	Easting (usft)	Northing (usft)	V. Sec (usft)	DLeg (°/100usft)	
0.0	0.00	0.00	0.0	-3,561.0	0.0	0.0	834,173.54	494,251.68	0.00	0.00	
100.0	0.00	276.00	100.0	-3,461.0	0.0	0.0	834,173.54	494,251.68	0.00	0.00	
120.0	0.00	276.00	120.0	-3,441.0	0.0	0.0	834,173.54	494,251.68	0.00	0.00	
20" Conductor											
200.0	0.00	276.00	200.0	-3,361.0	0.0	0.0	834,173.54	494,251.68	0.00	0.00	
300.0	0.00	276.00	300.0	-3,261.0	0.0	0.0	834,173.54	494,251.68	0.00	0.00	
400.0	0.00	276.00	400.0	-3,161.0	0.0	0.0	834,173.54	494,251.68	0.00	0.00	
500.0	0.00	276.00	500.0	-3,061.0	0.0	0.0	834,173.54	494,251.68	0.00	0.00	
600.0	0.00	276.00	600.0	-2,961.0	0.0	0.0	834,173.54	494,251.68	0.00	0.00	
700.0	0.00	276.00	700.0	-2,861.0	0.0	0.0	834,173.54	494,251.68	0.00	0.00	
800.0	0.00	276.00	800.0	-2,761.0	0.0	0.0	834,173.54	494,251.68	0.00	0.00	
900.0	0.00	276.00	900.0	-2,661.0	0.0	0.0	834,173.54	494,251.68	0.00	0.00	
1,000.0	0.00	276.00	1,000.0	-2,561.0	0.0	0.0	834,173.54	494,251.68	0.00	0.00	
1,100.0	0.00	276.00	1,100.0	-2,461.0	0.0	0.0	834,173.54	494,251.68	0.00	0.00	
1,200.0	0.00	276.00	1,200.0	-2,361.0	0.0	0.0	834,173.54	494,251.68	0.00	0.00	
1,300.0	0.00	276.00	1,300.0	-2,261.0	0.0	0.0	834,173.54	494,251.68	0.00	0.00	
1,400.0	0.00	276.00	1,400.0	-2,161.0	0.0	0.0	834,173.54	494,251.68	0.00	0.00	
1,500.0	0.00	276.00	1,500.0	-2,061.0	0.0	0.0	834,173.54	494,251.68	0.00	0.00	
1,600.0	0.00	276.00	1,600.0	-1,961.0	0.0	0.0	834,173.54	494,251.68	0.00	0.00	
1,700.0	0.00	276.00	1,700.0	-1,861.0	0.0	0.0	834,173.54	494,251.68	0.00	0.00	
1,800.0	0.00	276.00	1,800.0	-1,761.0	0.0	0.0	834,173.54	494,251.68	0.00	0.00	
1,900.0	0.00	276.00	1,900.0	-1,661.0	0.0	0.0	834,173.54	494,251.68	0.00	0.00	
1,953.0	0.00	276.00	1,953.0	-1,608.0	0.0	0.0	834,173.54	494,251.68	0.00	0.00	
Rustler											
1,978.0	0.00	276.00	1,978.0	-1,583.0	0.0	0.0	834,173.54	494,251.68	0.00	0.00	
13 3/8" Surface Casing											
2,000.0	0.00	276.00	2,000.0	-1,561.0	0.0	0.0	834,173.54	494,251.68	0.00	0.00	
2,100.0	0.00	276.00	2,100.0	-1,461.0	0.0	0.0	834,173.54	494,251.68	0.00	0.00	

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MD Reference: WELL @ 3561.0usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	Easting (usft)	Northing (usft)	V. Sec (usft)	DLeg (°/100usft)
2,200.0	0.00	276.00	2,200.0	-1,361.0	0.0	0.0	834,173.54	494,251.68	0.00	0.00
2,300.0	0.00	276.00	2,300.0	-1,261.0	0.0	0.0	834,173.54	494,251.68	0.00	0.00
2,400.0	0.00	276.00	2,400.0	-1,161.0	0.0	0.0	834,173.54	494,251.68	0.00	0.00
2,500.0	0.00	276.00	2,500.0	-1,061.0	0.0	0.0	834,173.54	494,251.68	0.00	0.00
2,528.0	0.00	276.00	2,528.0	-1,033.0	0.0	0.0	834,173.54	494,251.68	0.00	0.00
Top of Salt										
2,600.0	0.00	276.00	2,600.0	-961.0	0.0	0.0	834,173.54	494,251.68	0.00	0.00
2,700.0	0.00	276.00	2,700.0	-861.0	0.0	0.0	834,173.54	494,251.68	0.00	0.00
2,800.0	0.00	276.00	2,800.0	-761.0	0.0	0.0	834,173.54	494,251.68	0.00	0.00
2,900.0	0.00	276.00	2,900.0	-661.0	0.0	0.0	834,173.54	494,251.68	0.00	0.00
3,000.0	0.00	276.00	3,000.0	-561.0	0.0	0.0	834,173.54	494,251.68	0.00	0.00
3,100.0	0.00	276.00	3,100.0	-461.0	0.0	0.0	834,173.54	494,251.68	0.00	0.00
3,180.0	0.00	276.00	3,180.0	-381.0	0.0	0.0	834,173.54	494,251.68	0.00	0.00
Start Build 3.00										
3,200.0	0.60	276.00	3,200.0	-361.0	0.0	-0.1	834,173.43	494,251.69	0.00	3.00
3,300.0	3.60	276.00	3,299.9	-261.1	0.4	-3.7	834,169.79	494,252.07	0.14	3.00
3,380.0	6.00	276.00	3,379.6	-181.4	1.1	-10.4	834,163.13	494,252.77	0.39	3.00
Start 7280.0 hold at 3380.0 MD										
3,400.0	6.00	276.00	3,399.5	-161.5	1.3	-12.5	834,161.05	494,252.99	0.47	0.00
3,500.0	6.00	276.00	3,499.0	-62.0	2.4	-22.9	834,150.66	494,254.08	0.86	0.00
3,600.0	6.00	276.00	3,598.4	37.4	3.5	-33.3	834,140.26	494,255.17	1.25	0.00
3,700.0	6.00	276.00	3,697.9	136.9	4.6	-43.7	834,129.87	494,256.27	1.64	0.00
3,800.0	6.00	276.00	3,797.3	236.3	5.7	-54.1	834,119.47	494,257.36	2.03	0.00
3,900.0	6.00	276.00	3,896.8	335.8	6.8	-64.5	834,109.07	494,258.45	2.42	0.00
4,000.0	6.00	276.00	3,996.2	435.2	7.9	-74.9	834,098.68	494,259.54	2.81	0.00
4,100.0	6.00	276.00	4,095.7	534.7	9.0	-85.3	834,088.28	494,260.64	3.20	0.00
4,127.5	6.00	276.00	4,123.0	562.0	9.3	-88.1	834,085.43	494,260.94	3.31	0.00
Base of Salt										



Morcor Engineering
Morcor Standard Plan

MORCOR
ENGINEERING

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Wellbore:	Lennox 32 State 8H	Survey Calculation Method:	Minimum Curvature
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Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	Easting (usft)	Northing (usft)	V. Sec (usft)	DLeg (°/100usft)	
4,200.0	6.00	276.00	4,195.1	634.1	10.1	-95.6	834,077.89	494,261.73	3.59	0.00	
4,300.0	6.00	276.00	4,294.6	733.6	11.1	-106.0	834,067.49	494,262.82	3.99	0.00	
4,400.0	6.00	276.00	4,394.0	833.0	12.2	-116.4	834,057.10	494,263.91	4.38	0.00	
4,500.0	6.00	276.00	4,493.5	932.5	13.3	-126.8	834,046.70	494,265.01	4.77	0.00	
4,600.0	6.00	276.00	4,593.0	1,032.0	14.4	-137.2	834,036.30	494,266.10	5.16	0.00	
4,700.0	6.00	276.00	4,692.4	1,131.4	15.5	-147.6	834,025.91	494,267.19	5.55	0.00	
4,750.9	6.00	276.00	4,743.0	1,182.0	16.1	-152.9	834,020.62	494,267.75	5.75	0.00	
Capitan											
4,800.0	6.00	276.00	4,791.9	1,230.9	16.6	-158.0	834,015.51	494,268.28	5.94	0.00	
4,900.0	6.00	276.00	4,891.3	1,330.3	17.7	-168.4	834,005.12	494,269.38	6.33	0.00	
5,000.0	6.00	276.00	4,990.8	1,429.8	18.8	-178.8	833,994.72	494,270.47	6.72	0.00	
5,100.0	6.00	276.00	5,090.2	1,529.2	19.9	-189.2	833,984.33	494,271.56	7.11	0.00	
5,200.0	6.00	276.00	5,189.7	1,628.7	21.0	-199.6	833,973.93	494,272.65	7.50	0.00	
5,300.0	6.00	276.00	5,289.1	1,728.1	22.1	-210.0	833,963.54	494,273.75	7.89	0.00	
5,400.0	6.00	276.00	5,388.6	1,827.6	23.2	-220.4	833,953.14	494,274.84	8.28	0.00	
5,500.0	6.00	276.00	5,488.0	1,927.0	24.3	-230.8	833,942.74	494,275.93	8.67	0.00	
5,600.0	6.00	276.00	5,587.5	2,026.5	25.3	-241.2	833,932.35	494,277.03	9.06	0.00	
5,700.0	6.00	276.00	5,686.9	2,125.9	26.4	-251.6	833,921.95	494,278.12	9.45	0.00	
5,701.1	6.00	276.00	5,688.0	2,127.0	26.5	-251.7	833,921.84	494,278.13	9.46	0.00	
9 5/8" Intermediate Casing											
5,726.2	6.00	276.00	5,713.0	2,152.0	26.7	-254.3	833,919.23	494,278.40	9.56	0.00	
Delaware											
5,800.0	6.00	276.00	5,786.4	2,225.4	27.5	-262.0	833,911.56	494,279.21	9.85	0.00	
5,900.0	6.00	276.00	5,885.8	2,324.8	28.6	-272.4	833,901.16	494,280.30	10.24	0.00	
6,000.0	6.00	276.00	5,985.3	2,424.3	29.7	-282.8	833,890.77	494,281.40	10.63	0.00	
6,083.2	6.00	276.00	6,068.0	2,507.0	30.6	-291.4	833,882.12	494,282.30	10.95	0.00	
Cherry Canyon											

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Planned Survey

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6,100.0	6.00	276.00	6,084.7	2,523.7	30.8	-293.2	833,880.37	494,282.49	11.02	0.00
6,200.0	6.00	276.00	6,184.2	2,623.2	31.9	-303.6	833,869.98	494,283.58	11.41	0.00
6,300.0	6.00	276.00	6,283.6	2,722.6	33.0	-314.0	833,859.58	494,284.67	11.80	0.00
6,400.0	6.00	276.00	6,383.1	2,822.1	34.1	-324.4	833,849.18	494,285.77	12.19	0.00
6,500.0	6.00	276.00	6,482.5	2,921.5	35.2	-334.7	833,838.79	494,286.86	12.58	0.00
6,600.0	6.00	276.00	6,582.0	3,021.0	36.3	-345.1	833,828.39	494,287.95	12.97	0.00
6,700.0	6.00	276.00	6,681.4	3,120.4	37.4	-355.5	833,818.00	494,289.04	13.36	0.00
6,800.0	6.00	276.00	6,780.9	3,219.9	38.5	-365.9	833,807.60	494,290.14	13.75	0.00
6,900.0	6.00	276.00	6,880.4	3,319.4	39.6	-376.3	833,797.21	494,291.23	14.14	0.00
7,000.0	6.00	276.00	6,979.8	3,418.8	40.6	-386.7	833,786.81	494,292.32	14.53	0.00
7,100.0	6.00	276.00	7,079.3	3,518.3	41.7	-397.1	833,776.42	494,293.41	14.92	0.00
7,200.0	6.00	276.00	7,178.7	3,617.7	42.8	-407.5	833,766.02	494,294.51	15.31	0.00
7,300.0	6.00	276.00	7,278.2	3,717.2	43.9	-417.9	833,755.62	494,295.60	15.71	0.00
7,400.0	6.00	276.00	7,377.6	3,816.6	45.0	-428.3	833,745.23	494,296.69	16.10	0.00
7,445.6	6.00	276.00	7,423.0	3,862.0	45.5	-433.1	833,740.48	494,297.19	16.27	0.00
Brushy Canyon										
7,500.0	6.00	276.00	7,477.1	3,916.1	46.1	-438.7	833,734.83	494,297.79	16.49	0.00
7,600.0	6.00	276.00	7,576.5	4,015.5	47.2	-449.1	833,724.44	494,298.88	16.88	0.00
7,700.0	6.00	276.00	7,676.0	4,115.0	48.3	-459.5	833,714.04	494,299.97	17.27	0.00
7,800.0	6.00	276.00	7,775.4	4,214.4	49.4	-469.9	833,703.65	494,301.06	17.66	0.00
7,900.0	6.00	276.00	7,874.9	4,313.9	50.5	-480.3	833,693.25	494,302.16	18.05	0.00
8,000.0	6.00	276.00	7,974.3	4,413.3	51.6	-490.7	833,682.86	494,303.25	18.44	0.00
8,100.0	6.00	276.00	8,073.8	4,512.8	52.7	-501.1	833,672.46	494,304.34	18.83	0.00
8,200.0	6.00	276.00	8,173.2	4,612.2	53.8	-511.5	833,662.06	494,305.43	19.22	0.00
8,300.0	6.00	276.00	8,272.7	4,711.7	54.9	-521.9	833,651.67	494,306.53	19.61	0.00
8,400.0	6.00	276.00	8,372.1	4,811.1	55.9	-532.3	833,641.27	494,307.62	20.00	0.00
8,500.0	6.00	276.00	8,471.6	4,910.6	57.0	-542.7	833,630.88	494,308.71	20.39	0.00

Company:	Caza Operating LLC	Local Co-ordinate Reference:	Well Lennox 32 State 8H
Project:	Lennox 32 State 8H	TVD Reference:	WELL @ 3561.0usft (Original Well Elev)
Site:	Lennox 32 State 8H	MD Reference:	WELL @ 3561.0usft (Original Well Elev)
Well:	Lennox 32 State 8H	North Reference:	Grid
Wellbore:	Lennox 32 State 8H	Survey Calculation Method:	Minimum Curvature
Design:	181029 Lennox 32 State 8H	Database:	EDM 5000.1 Single User Db

Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	Easting (usft)	Northing (usft)	V. Sec (usft)	DLeg (°/100usft)	
8,600.0	6.00	276.00	8,571.0	5,010.0	58.1	-553.1	833,620.48	494,309.80	20.78	0.00	
8,700.0	6.00	276.00	8,670.5	5,109.5	59.2	-563.5	833,610.09	494,310.90	21.17	0.00	
8,788.0	6.00	276.00	8,758.0	5,197.0	60.2	-572.6	833,600.94	494,311.86	21.52	0.00	
Bone Spring											
8,800.0	6.00	276.00	8,769.9	5,208.9	60.3	-573.8	833,599.69	494,311.99	21.56	0.00	
8,900.0	6.00	276.00	8,869.4	5,308.4	61.4	-584.2	833,589.29	494,313.08	21.96	0.00	
9,000.0	6.00	276.00	8,968.8	5,407.8	62.5	-594.6	833,578.90	494,314.17	22.35	0.00	
9,100.0	6.00	276.00	9,068.3	5,507.3	63.6	-605.0	833,568.50	494,315.27	22.74	0.00	
9,200.0	6.00	276.00	9,167.8	5,606.8	64.7	-615.4	833,558.11	494,316.36	23.13	0.00	
9,300.0	6.00	276.00	9,267.2	5,706.2	65.8	-625.8	833,547.71	494,317.45	23.52	0.00	
9,400.0	6.00	276.00	9,366.7	5,805.7	66.9	-636.2	833,537.32	494,318.54	23.91	0.00	
9,500.0	6.00	276.00	9,466.1	5,905.1	68.0	-646.6	833,526.92	494,319.64	24.30	0.00	
9,600.0	6.00	276.00	9,565.6	6,004.6	69.1	-657.0	833,516.53	494,320.73	24.69	0.00	
9,700.0	6.00	276.00	9,665.0	6,104.0	70.1	-667.4	833,506.13	494,321.82	25.08	0.00	
9,800.0	6.00	276.00	9,764.5	6,203.5	71.2	-677.8	833,495.73	494,322.92	25.47	0.00	
9,813.6	6.00	276.00	9,778.0	6,217.0	71.4	-679.2	833,494.32	494,323.06	25.52	0.00	
1st Bone Spring Sand											
9,900.0	6.00	276.00	9,863.9	6,302.9	72.3	-688.2	833,485.34	494,324.01	25.86	0.00	
10,000.0	6.00	276.00	9,963.4	6,402.4	73.4	-698.6	833,474.94	494,325.10	26.25	0.00	
10,100.0	6.00	276.00	10,062.8	6,501.8	74.5	-709.0	833,464.55	494,326.19	26.64	0.00	
10,200.0	6.00	276.00	10,162.3	6,601.3	75.6	-719.4	833,454.15	494,327.29	27.03	0.00	
10,300.0	6.00	276.00	10,261.7	6,700.7	76.7	-729.8	833,443.76	494,328.38	27.42	0.00	
10,391.8	6.00	276.00	10,353.0	6,792.0	77.7	-739.3	833,434.22	494,329.38	27.78	0.00	
2nd Bone Spring Sand											
10,400.0	6.00	276.00	10,361.2	6,800.2	77.8	-740.2	833,433.36	494,329.47	27.82	0.00	
10,500.0	6.00	276.00	10,460.6	6,899.6	78.9	-750.6	833,422.97	494,330.56	28.21	0.00	
10,600.0	6.00	276.00	10,560.1	6,999.1	80.0	-761.0	833,412.57	494,331.66	28.60	0.00	

Company:	Caza Operating LLC	Local Co-ordinate Reference:	Well Lennox 32 State 8H
Project:	Lennox 32 State 8H	TVD Reference:	WELL @ 3561.0usft (Original Well Elev)
Site:	Lennox 32 State 8H	MD Reference:	WELL @ 3561.0usft (Original Well Elev)
Well:	Lennox 32 State 8H	North Reference:	Grid
Wellbore:	Lennox 32 State 8H	Survey Calculation Method:	Minimum Curvature
Design:	181029 Lennox 32 State 8H	Database:	EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	Easting (usft)	Northing (usft)	V. Sec (usft)	DLeg (°/100usft)
10,660.0	6.00	276.00	10,619.8	7,058.8	80.6	-767.2	833,406.33	494,332.31	28.83	0.00
Start Drop -3.00										
10,700.0	4.80	276.00	10,659.6	7,098.6	81.0	-770.9	833,402.59	494,332.71	28.97	3.00
10,800.0	1.80	276.00	10,759.4	7,198.4	81.6	-776.7	833,396.86	494,333.31	29.19	3.00
10,860.0	0.00	0.00	10,819.4	7,258.4	81.7	-777.6	833,395.93	494,333.41	29.22	3.00
Start 51.0 hold at 10860.0 MD										
10,900.0	0.00	180.00	10,859.4	7,298.4	81.7	-777.6	833,395.93	494,333.41	29.22	0.00
10,911.0	0.00	180.00	10,870.4	7,309.4	81.7	-777.6	833,395.93	494,333.41	29.22	0.00
Start Build 11.23										
11,000.0	9.99	180.00	10,958.9	7,397.9	74.0	-777.6	833,395.93	494,325.66	36.89	11.23
11,100.0	21.22	180.00	11,055.1	7,494.1	47.1	-777.6	833,395.93	494,298.80	63.48	11.23
11,200.0	32.45	180.00	11,144.2	7,583.2	2.0	-777.6	833,395.93	494,253.72	108.10	11.23
11,234.9	36.38	180.00	11,173.0	7,612.0	-17.7	-777.6	833,395.93	494,233.97	127.65	11.23
3rd Bone Spring Sand										
11,300.0	43.68	180.00	11,222.8	7,661.8	-59.5	-777.6	833,395.93	494,192.16	169.05	11.23
11,400.0	54.91	180.00	11,287.9	7,726.9	-135.2	-777.6	833,395.93	494,116.46	243.98	11.23
11,500.0	66.14	180.00	11,337.0	7,776.0	-222.1	-777.6	833,395.93	494,029.54	330.02	11.23
11,600.0	77.37	180.00	11,368.3	7,807.3	-317.0	-777.6	833,395.93	493,934.72	423.89	11.23
11,700.0	88.60	180.00	11,380.4	7,819.4	-416.0	-777.6	833,395.93	493,835.63	521.98	11.23
11,711.0	89.84	180.00	11,380.6	7,819.6	-427.0	-777.6	833,395.93	493,824.63	532.87	11.23
Start DLS 0.03 TFO -85.24										
11,800.0	89.84	179.98	11,380.8	7,819.8	-516.0	-777.6	833,395.95	493,735.63	620.97	0.03
11,900.0	89.84	179.95	11,381.1	7,820.1	-616.0	-777.5	833,396.01	493,635.63	719.96	0.03
12,000.0	89.85	179.93	11,381.4	7,820.4	-716.0	-777.4	833,396.11	493,535.63	818.93	0.03
12,100.0	89.85	179.90	11,381.6	7,820.6	-816.0	-777.3	833,396.27	493,435.63	917.90	0.03
12,200.0	89.85	179.87	11,381.9	7,820.9	-916.0	-777.1	833,396.46	493,335.63	1,016.87	0.03
12,300.0	89.85	179.85	11,382.2	7,821.2	-1,016.0	-776.8	833,396.71	493,235.63	1,115.82	0.03
12,400.0	89.85	179.82	11,382.4	7,821.4	-1,116.0	-776.5	833,396.99	493,135.63	1,214.77	0.03

Company:	Caza Operating LLC	Local Co-ordinate Reference:	Well Lennox 32 State 8H
Project:	Lennox 32 State 8H	TVD Reference:	WELL @ 3561.0usft (Original Well Elev)
Site:	Lennox 32 State 8H	MD Reference:	WELL @ 3561.0usft (Original Well Elev)
Well:	Lennox 32 State 8H	North Reference:	Grid
Wellbore:	Lennox 32 State 8H	Survey Calculation Method:	Minimum Curvature
Design:	181029 Lennox 32 State 8H	Database:	EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	Easting (usft)	Northing (usft)	V. Sec (usft)	DLeg (°/100usft)
12,500.0	89.86	179.80	11,382.7	7,821.7	-1,216.0	-776.2	833,397.32	493,035.63	1,313.72	0.03
12,600.0	89.86	179.77	11,382.9	7,821.9	-1,316.0	-775.8	833,397.70	492,935.63	1,412.65	0.03
12,700.0	89.86	179.75	11,383.2	7,822.2	-1,416.0	-775.4	833,398.12	492,835.63	1,511.59	0.03
12,800.0	89.86	179.72	11,383.4	7,822.4	-1,516.0	-774.9	833,398.59	492,735.64	1,610.51	0.03
12,900.0	89.87	179.69	11,383.6	7,822.6	-1,616.0	-774.4	833,399.10	492,635.64	1,709.43	0.03
13,000.0	89.87	179.67	11,383.9	7,822.9	-1,716.0	-773.9	833,399.66	492,535.64	1,808.34	0.03
13,100.0	89.87	179.64	11,384.1	7,823.1	-1,816.0	-773.3	833,400.26	492,435.64	1,907.25	0.03
13,200.0	89.87	179.62	11,384.3	7,823.3	-1,916.0	-772.6	833,400.90	492,335.64	2,006.14	0.03
13,300.0	89.87	179.59	11,384.6	7,823.6	-2,016.0	-771.9	833,401.59	492,235.65	2,105.04	0.03
13,400.0	89.88	179.57	11,384.8	7,823.8	-2,116.0	-771.2	833,402.33	492,135.65	2,203.92	0.03
13,500.0	89.88	179.54	11,385.0	7,824.0	-2,216.0	-770.4	833,403.11	492,035.65	2,302.80	0.03
13,600.0	89.88	179.51	11,385.2	7,824.2	-2,316.0	-769.6	833,403.93	491,935.66	2,401.67	0.03
13,700.0	89.88	179.49	11,385.4	7,824.4	-2,416.0	-768.7	833,404.80	491,835.66	2,500.53	0.03
13,800.0	89.88	179.46	11,385.6	7,824.6	-2,516.0	-767.8	833,405.72	491,735.66	2,599.39	0.03
13,900.0	89.89	179.44	11,385.8	7,824.8	-2,616.0	-766.9	833,406.68	491,635.67	2,698.24	0.03
14,000.0	89.89	179.41	11,386.0	7,825.0	-2,716.0	-765.9	833,407.68	491,535.67	2,797.09	0.03
14,100.0	89.89	179.39	11,386.2	7,825.2	-2,816.0	-764.8	833,408.73	491,435.68	2,895.93	0.03
14,200.0	89.89	179.36	11,386.4	7,825.4	-2,916.0	-763.7	833,409.83	491,335.69	2,994.76	0.03
14,300.0	89.90	179.33	11,386.6	7,825.6	-3,016.0	-762.6	833,410.97	491,235.69	3,093.58	0.03
14,400.0	89.90	179.31	11,386.7	7,825.7	-3,116.0	-761.4	833,412.15	491,135.70	3,192.40	0.03
14,500.0	89.90	179.28	11,386.9	7,825.9	-3,216.0	-760.2	833,413.38	491,035.71	3,291.21	0.03
14,600.0	89.90	179.26	11,387.1	7,826.1	-3,316.0	-758.9	833,414.65	490,935.72	3,390.01	0.03
14,700.0	89.90	179.23	11,387.3	7,826.3	-3,416.0	-757.6	833,415.97	490,835.72	3,488.81	0.03
14,800.0	89.91	179.21	11,387.4	7,826.4	-3,515.9	-756.2	833,417.34	490,735.73	3,587.60	0.03
14,900.0	89.91	179.18	11,387.6	7,826.6	-3,615.9	-754.8	833,418.75	490,635.74	3,686.38	0.03
15,000.0	89.91	179.15	11,387.8	7,826.8	-3,715.9	-753.3	833,420.20	490,535.75	3,785.16	0.03
15,100.0	89.91	179.13	11,387.9	7,826.9	-3,815.9	-751.8	833,421.70	490,435.77	3,883.93	0.03

Company:	Caza Operating LLC	Local Co-ordinate Reference:	Well Lennox 32 State 8H
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Site:	Lennox 32 State 8H	MD Reference:	WELL @ 3561.0usft (Original Well Elev)
Well:	Lennox 32 State 8H	North Reference:	Grid
Wellbore:	Lennox 32 State 8H	Survey Calculation Method:	Minimum Curvature
Design:	181029 Lennox 32 State 8H	Database:	EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	Easting (usft)	Northing (usft)	V. Sec (usft)	DLeg (°/100usft)
15,200.0	89.91	179.10	11,388.1	7,827.1	-3,915.9	-750.3	833,423.24	490,335.78	3,982.69	0.03
15,300.0	89.92	179.08	11,388.2	7,827.2	-4,015.9	-748.7	833,424.83	490,235.79	4,081.44	0.03
15,400.0	89.92	179.05	11,388.3	7,827.3	-4,115.9	-747.1	833,426.46	490,135.80	4,180.19	0.03
15,500.0	89.92	179.03	11,388.5	7,827.5	-4,215.9	-745.4	833,428.14	490,035.82	4,278.93	0.03
15,600.0	89.92	179.00	11,388.6	7,827.6	-4,315.8	-743.7	833,429.86	489,935.83	4,377.66	0.03
15,700.0	89.93	178.97	11,388.8	7,827.8	-4,415.8	-741.9	833,431.63	489,835.85	4,476.39	0.03
15,800.0	89.93	178.95	11,388.9	7,827.9	-4,515.8	-740.1	833,433.44	489,735.87	4,575.11	0.03
15,900.0	89.93	178.92	11,389.0	7,828.0	-4,615.8	-738.2	833,435.30	489,635.88	4,673.82	0.03
16,000.0	89.93	178.90	11,389.1	7,828.1	-4,715.8	-736.3	833,437.20	489,535.90	4,772.52	0.03
16,100.0	89.93	178.87	11,389.2	7,828.2	-4,815.8	-734.4	833,439.15	489,435.92	4,871.22	0.03
16,200.0	89.94	178.85	11,389.4	7,828.4	-4,915.7	-732.4	833,441.14	489,335.94	4,969.91	0.03
16,300.0	89.94	178.82	11,389.5	7,828.5	-5,015.7	-730.4	833,443.18	489,235.96	5,068.60	0.03
16,378.0	89.94	178.80	11,389.5	7,828.5	-5,093.7	-728.7	833,444.80	489,157.98	5,145.56	0.03

TD at 16378.0 - 5 1/2" Production Casing

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
120.0	120.0	20" Conductor	20	26
1,978.0	1,978.0	13 3/8" Surface Casing	13-3/8	17-1/2
5,701.1	5,688.0	9 5/8" Intermediate Casing	9-5/8	12-1/4
16,378.0	11,389.5	5 1/2" Production Casing	5-1/2	8-3/4

Company: Caza Operating LLC
Project: Lennox 32 State 8H
Site: Lennox 32 State 8H
Well: Lennox 32 State 8H
Wellbore: Lennox 32 State 8H
Design: 181029 Lennox 32 State 8H

Local Co-ordinate Reference: Well Lennox 32 State 8H
TVD Reference: WELL @ 3561.0usft (Original Well Elev)
MD Reference: WELL @ 3561.0usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,083.2	6,068.0	Cherry Canyon		0.00	
10,391.8	10,353.0	2nd Bone Spring Sand		0.00	
2,528.0	2,528.0	Top of Salt		0.00	
4,127.5	4,123.0	Base of Salt		0.00	
1,953.0	1,953.0	Rustler		0.00	
5,726.2	5,713.0	Delaware		0.00	
8,788.0	8,758.0	Bone Spring		0.00	
4,750.9	4,743.0	Capitan		0.00	
9,813.6	9,778.0	1st Bone Spring Sand		0.00	
7,445.6	7,423.0	Brushy Canyon		0.00	
11,234.9	11,173.0	3rd Bone Spring Sand		0.00	

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
3,180.0	3,180.0	0.0	0.0	Start Build 3.00
3,380.0	3,379.6	1.1	-10.4	Start 7280.0 hold at 3380.0 MD
10,660.0	10,619.8	80.6	-767.2	Start Drop -3.00
10,860.0	10,819.4	81.7	-777.6	Start 51.0 hold at 10860.0 MD
10,911.0	10,870.4	81.7	-777.6	Start Build 11.23
11,711.0	11,380.6	-427.0	-777.6	Start DLS 0.03 TFO -85.24
16,378.0	11,389.5	-5,093.7	-728.7	TD at 16378.0

Checked By: _____ Approved By: _____ Date: _____